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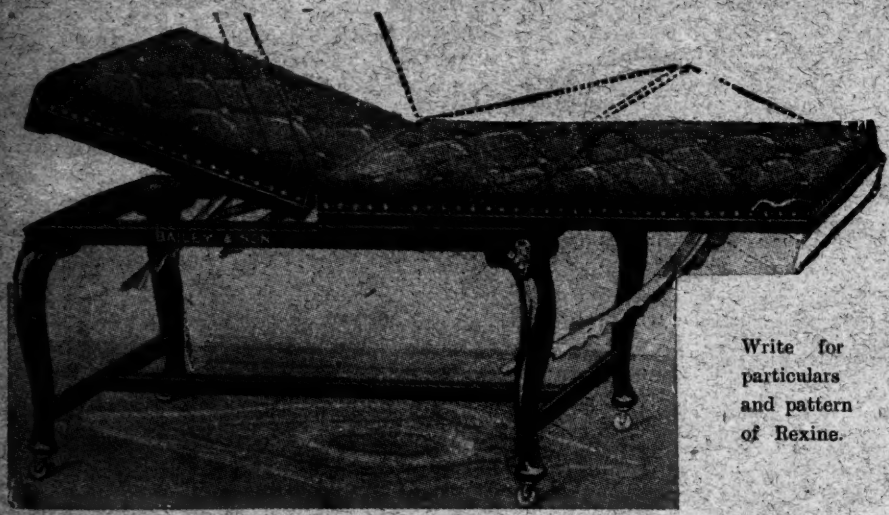

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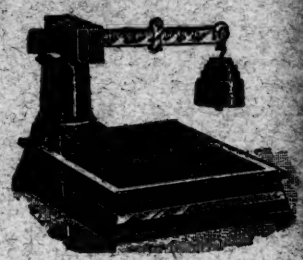

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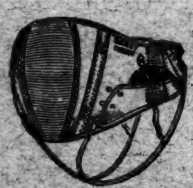

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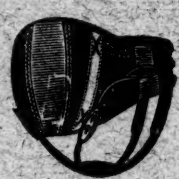

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THE EFFECTS OF HIGH EXPLOSIVES ON THE EAR.*

BY

J. GORDON WILSON, M.A., M.B., C.M.EDIN.,

PROFESSOR OF OTOLOGY, NORTH-WESTERN UNIVERSITY, CHICAGO; CAPTAIN C.A.M.C.

ON HEARING.

THIS title is to be preferred to "deafness due to shell shock" for several reasons. The word "shock" has a varied significance. To the neurologist it conveys many ideas; thus von Monakow distinguishes several varieties of shock—surgical shock, psychical shock, apoplectic shock, commotio cerebri, diaschisis. Even in its best recognized form, surgical shock, the physiological mechanism which has been interfered with to produce the symptoms is unknown. The title chosen will, I hope, do away with much ambiguity.

In considering deafness due to high explosive, one should, as far as possible, dismiss from the mind preconceived ideas. Not only should one avoid the term "shock," but also one should avoid as far as possible the terms "hysteria" and "neurasthenia." To get some idea of what has happened the subject ought to be considered with an open and a critical mind.

THE RELATION OF THE EAR TO PRESSURE.

The organ we call the ear, like all peripheral organs, is a mechanism adapted to transform one form of external energy into nerve impulses. There are two separate and distinct mechanisms in the internal ear, one concerned with hearing, one concerned with equilibrium. Each of these mechanisms is adjusted and made sensitive to register minute pressures and transform them into nerve impulses. The nerve impulses are carried to the central nervous system to be there interpreted and utilized. In hearing, air vibrations (varying, say, from thirty-two double vibrations per second up to several thousand double vibrations per second) in various combinations are transmitted normally through the external auditory meatus to the drum membrane, which is finely swung to catch them. The vibrations are then transmitted through the ossicles and the middle ear to the cochlea, where they are transformed into nerve impulses. Nerve impulses may also be set up in the cochlea by vibrations through bone. The nerve impulses are conveyed along the cochlear nerve and acoustic path to the temporal lobe, where they enter in one definite bundle to be again redistributed to various parts of the cerebrum. The route from the periphery to the cortex is not one long undivided path. To put it roughly, there is not one telephone wire from the ear to the receiving and interpreting station in the cortex. The path is broken at various synapses or junctions or telephone exchanges. At these synapses connexion is made with other nerve paths, and communication can be and is established with other physiological systems. The significance of this I shall refer to later.

The other pressure mechanism in the internal ear is a system of canals containing fluid, a manometer, so designed as to register and signal to the central nervous system movements of the head. This mechanism is adjusted to indicate very small varying pressures. The information so obtained, together with information received from other sources (the eyes, joints, etc.), enables the muscular mechanism to adapt itself rapidly to varying alterations of our centre of gravity—for instance, to maintain the erect posture during movements of the head.

There are certain limits of pressure normal to these two mechanisms. Pressure beyond the normal produces disturbances which are pathological. Disturbances of hearing may cause hyperacusis, hypoacusis, or total deafness. Disturbance of the canalicular system produce disturbances of equilibrium—for instance, vertigo and nystagmus.

The effect of the high explosive is a great compression, amounting in some cases to ten tons to the square yard (10,000 kilos per square metre), followed by an equally great decompression.[1] The rôle played by each of these I do not intend to discuss.

The effect of the explosion can be best expressed by referring to a few typical cases. Cases of gradual diminution of perception of sound from long exposure to gunfire do not come within this paper. We are here concerned chiefly with the results of one severe concussion, followed by total or diminished loss of hearing. In some of the cases a previous concussion may have damaged the hearing, and the second made it worse, or resulted in total loss.

Classification of Cases.

The cases that are admitted to the hospital suffering from "nerve deafness due to shell concussion" can be divided into three groups:

1. Those with nerve deafness.
2. Those who have had nerve deafness of a varying degree, and who have still the fixed idea that they cannot hear.
3. Malingerers. Some undoubtedly have had shell concussion which has affected the hearing, but have now recovered; others are malingerers pure and simple.

It is a difficult matter to separate the second from the third. Experience, the general condition of the patient, his answers to the test questions, largely aid one. The following may be given as an example of Group 2.

Pte. De S. Severely wounded in head by bullet on May 28th, 1916; unconscious for several hours; when recovered consciousness was deaf in right ear. Admitted October 1st because of deafness. Has a depression (5.2 cm. by 1.5 cm.) in the right parietal bone near interparietal suture through which pulsation of brain can be seen. Right membrana tympani slightly retracted, otherwise normal; no hearing for voice or forks. Left membrana tympani normal; hearing for voice and forks normal. No paralyses, no anæsthesia, no astereognosis, no tremor, no Romberg.

Eyes.—Movements normal; fields normal; fundi normal; vision in both $\frac{6}{6}$.

October 6th.—Caloric test (cold) to right ear; immediately after heard voices in right at room length (7 yards); whisper 20 inches.

It is with the first group that this paper is concerned. To the second group belong those cases that yield to suggestion or recover hearing rapidly, often completely, after excitement or intense stimulation. To discuss the third group and how the malingerer can be detected is outside the limits of this paper.

NERVE DEAFNESS.

The cases of nerve deafness (Group 1) which have come under observation, may roughly be divided as follows:

I. Cases of nerve deafness associated with damage to the conducting mechanism.

II. Cases of nerve deafness without any visible or demonstrable lesion in the conducting mechanism when they came under observation. This does not preclude the occurrence of a demonstrable lesion at the time of the concussion; in fact, the history of many of these cases shows that this did occur.

III. Cases of nerve deafness in which there has been destruction of the cochlea and of the semicircular canals or their nerves.

In each of the first two groups the loss may be partial or total; the third always causes total loss.

It may be said in passing that the otologist has well recognized tests at his disposal which enable him to differentiate injury to the conducting mechanism from injury to the nerve mechanism. There is, however, great difficulty in saying how much of the loss is due to one, how much is due to the other.

The cases of disturbance of hearing following exposure to high explosives seen by me in West Cliff during the last two months date their onset back anywhere from eleven months to two months. We are only now receiving cases of more recent date. The average time from the date of the injury of those now under review is about three months. All have been under treatment since the injury, many in the care of competent otologists.

The symptoms associated with loss of hearing from high explosives fall within that group of nerve diseases called traumatic neuroses. In many of our cases there is a recognizable physical trauma in the head or elsewhere received during a period of mental excitement. It is well recognized that "traumatic neuroses" are specially apt to occur under such conditions. The symptoms are varied and complex. There are present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbance, sweatings, lethargy, sleeplessness, and headaches. There

* Read before the Medical Society of the C.A.M.C. at Shorncliffe, October, 1916.

is unsteady equilibrium with vertigo. There is a concentric narrowing of the field of vision. In many of our cases fields of anaesthesia were present. In two of our cases of total deafness there was complete anaesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other there was anaesthesia on one half of the body and hyperaesthesia on the other. Speaking generally, one may say that there are here included some symptoms which are frequently grouped under the term "hysteria," others under the term "neurasthenia." According to Dejerine, in traumatic hystero-neurasthenia the patients pretty often have hyperacusis with subjective sounds as in neurasthenia; in other cases it is auditory acuity that is diminished, sometimes on both sides, sometimes on one only, as in hysteria.[2]

Method of Examination.

The following case sheet is filled in on the first examination:

WEST CLIFF CANADIAN EYE AND EAR HOSPITAL,
Folkestone, ..., 1917.

Name ..... Reg. No. ..... Unit .....
Age ..... Previous occupation .....
Complaint ..... Previous condition .....
History of present illness .....
Alcohol ..... Tobacco .....
Nose ..... Nasopharynx .....

	Right Ear.	Left Ear.
M.T.		
Tube		
Forks:		
32 dv.		
64 dv.		
128 dv.		
C 256		
C 2		
C 3		
C 4		
Whistle		
Monochord		
Rinne		
Schwabach	Weber (C or C¹)	
Conversation Voice		
Whisper		
Romberg		
Equilibrium in Right Foot		Equilibrium in Left Foot
Bending Forward		Bending Backward
Finger to Finger		Finger to Nose
Pointing Left Hand	up	down
Pointing Right Hand	up	down
Ataxia		Tremor
Reflexes		Nystagmus
Caloric Reaction		Rotation Reaction
Vertigo		
Diagnosis		

We have examined and treated over 80 cases of nerve deafness due to high explosives; examined as many more supposed cases. We have had three cases of total (bilateral) deafness to voices, forks, and loud noises. Of these three, after treatment, one, Pte. K., could hear in the right ear conversational voice at 18 in. before being sent to Moore Barracks because of mental hyperexcitability. The other two are now under treatment. One, Pte. H., who had complete anaesthesia and no thermal sense, can hear conversation voice through a speaking tube. The other, Pte. P., who had a gunshot wound in the region of the left temporal lobe, the R.M.T. completely destroyed, with otorrhoea, and the L.M.T. atrophic and adhesions in middle ear, can distinguish notes from a resonator along a tube to the ear, and "Tipperary" and the "Maple Leaf" when he stands close to the piano. Of the others, usually with marked deficiency on one side and total deafness on the other, with caloric reaction still present on the totally deaf side, all have improved, remarkably so in the ear with the deficient hearing.

The cases here given are selected to show the variety of cases, and not to emphasize the results. The complete results will be published later.

Sergt. L. Previous to enlistment ears normal. In France from January, 1915. On June 2nd, 1916, was hit with shrapnel, which pierced his helmet over the frontal bone, and buried; scalp bruised, bone not fractured. Not unconscious; dazed, not vertigo; no nausea; totally deaf in the left, some dullness in the right; refused to be invalided till laid off with "influenza" ten days later. Seen September 6th. R.M.T. normal; L.M.T. perforation and otorrhoea. Hearing for conversational voice, R.E., 3 yards; L.E., 0. All forks heard by right ear, none by left, though faint over mastoid. Few symptoms of traumatic neurosis. Left caloric easily obtained. Sent to the C.C.A.C. on October 10th with this report: R.M.T. normal, L.M.T. small perforation, no discharge. Hearing for conversational voice, right ear 7 yards; left ear 1 yard (with noise apparatus in right), whisper close to ear.

Pte. H. Previous to enlistment ears normal. In France nine months. On June 28th, 1916, received shrapnel wound on left side of head and blown up. Unconscious for several hours; left ear bleeding, followed by suppuration for a few days. Admitted September 15th, 1916. R.M.T. thickened and retracted; L.M.T. congested, hammer not seen; conversational voice, right ear, two yards; voice and forks in left, *nil*; violent headaches, great tremor, slight vertigo. October 17th: Sent to C.C.A.C., with this report: R.M.T. retracted; L.M.T. slight middle catarrh; conversational voice, right ear normal, whisper 24 in.; left ear 7 yards, whisper 15 in.

Pte. C. H. Previous to enlistment ears normal. In France four and a half months. On June 13th, 1916, shell burst about 5 ft. away on right. Slight shrapnel wounds over left eye; not knocked down, not unconscious; heard and felt loud crack in right ear; rotation vertigo; no vomiting. Helped back to doctor's dug-out and sent to Boulogne. Totally deaf in right ear, some deficiency in left. Admitted October 1st, 1916. R.M.T. retracted and perforated; L.M.T. retracted. Hearing for voice and forks, right ear, *nil*; left ear, voice 7 yards, all forks. Right caloric easily obtained. October 15th: Hears voice in right ear with noise apparatus in left; easily fatigued; sweats freely during treatment. October 20th: Sent to the C.C.A.C. with this report: Right ear, drum membrane retracted, small recently healed scar, also small perforation; no discharge; hearing for conversational voice 8 in. with noise apparatus in left. Left ear, drum membrane retracted; hearing normal for voice and whisper; tremor less marked.

Lieut. S. Previous condition of ears normal. In France three weeks. On June 3rd, 1916, blown up by bursting of shell; unconscious for twenty-four hours. No ear haemorrhage; no discharge; no vomiting; vertigo not marked. Efficiency of hearing in right ear, totally deaf in left. Seen September 15th, 1916. Hears all forks and voice at 3 yards in the right; in left total deafness to forks and voice. R.M.T. displaced by adhesions; L.M.T., adhesions and marked atrophy of posterior half. Hyperaesthesia on right half of body, anaesthesia on left; concentric limitation of the fields of vision. On October 24th, 1916, sent to the C.C.A.C. with the following report: Conversational voice, in the right ear over 7 yards; in the left ear (with noise apparatus in the right) 10 in.

Gunner R. Previous to enlisting, defective hearing in left ear sufficient to exclude him from Australian Government telephone service. On July 30th struck by shell on left arm and back; blown up. Does not remember anything for three days (unconscious?), then rotation vertigo; great nausea; deaf in both ears. Hearing came back in left ear in twelve days without treatment. Admitted September 14th, 1916. Right membrane normal; no hearing for voice or forks. Left membrane normal, hearing for voice 2 yards. Severe vertigo at times. October 12th, 1916: Sent to the C.C.A.C., with this report: Conversation voice, in right ear 20 in.; in left ear 5 yards. Recommend that he be sent to convalescent home.

Pte. H. No previous ear trouble. On June 18th, 1916, after two months in France, "blown over parapet"; unconscious for some hours; totally deaf in both ears. Admitted September 4th, 1916. Right membrane congested; left congested and retracted. Totally deaf in both ears to voice, forks, and all sounds. Can distinguish and differentiate C^1 and C^2 on right mastoid by summation of stimuli. Mentally clear and intelligent. Bilateral anaesthesia; no thermal sense for heat and cold. Deficient senses of position for elbow, wrists, and fingers. Easily fatigued; irritable; if eyes are closed drops off to sleep. Taste accurate but weak; concentric limitation of vision. Vertigo; staggers if eyes are shut. Frequently complains of tingling and itching in the ears. (N.B.—This is a frequent complaint in these cases.) September 4th, 1916: Gets notes on the piano by right ear, and all forks over right mastoid. Galton whistle at right ear feels like the prick of a needle. (N.B.—Because of the tendency to rapid fatigue, treatment at first was confined to right ear.) October 4th, 1916: Hears all forks over mastoid in both ears; and in right from resonator 16 in. away connected to his ear by a tube. Sings tunefully and rhythmically. October 20th, 1916: Hears in right ear short sentences by the aid of a speaking tube, and through resonator in left. Caloric in left gives reaction with 4 oz. of water at 66° F. Still under treatment.

When the caloric and rotation tests give no reaction in a totally deaf ear no treatment is persevered in. We may give one example:

Pte. S. No previous ear trouble. On June 2nd, 1916, was buried by shell fire; dug out unconscious and remained so for four hours; then deaf in left ear, with severe vertigo and vomiting. If he attempted to sit up had rotation vertigo and fell over. Severe headaches. Admitted August 20th, 1916. Totally deaf in left ear to forks and voice; vertigo on stooping or turning, with nausea. Not able, because of his condition, to test caloric. Right ear, hearing normal. Headaches less. September 10th, 1916: No hearing in right ear. Vertigo less. Caloric in left gives no reaction. Rotation gives a duration from right stimulation about half of that of left stimulation. Drum membrane normal, tube open. Diagnosis: Destruction of left internal ear.

Pathology.

The pathology of nerve deafness from high explosives is unknown. Mr. Sydney Scott of London has reported a case in which, after a bullet wound fracturing the vertex of the skull, with no paralysis but great bilateral though

not total deafness, the *post-mortem* examination showed intact tympanic membrane, no injury to stapes, or annular ligament, or membrana secundaria; no haemorrhage into the labyrinth; blood clot in both middle ears; no fracture of the base.[3]

Various explanations of the causation of traumatic neurosis, based on pathological findings, have been offered. For instance, changes in the small cranial blood vessels, changes in the myeline sheaths, small haemorrhages, air emboli following decompression as a result of high explosives, etc.; finally, as morbid anatomy throws so little light on the subject, it is suggested that we have here molecular changes in the nerve and nerve cell.[4] It will be a great injustice to the thousands who suffer from this malady, as well as a great loss to science, if something be not attempted at this time to enlighten us on the pathological changes present. Rational treatment demands information; and rational treatment, not haphazard empiricism, ought to be given to those suffering from these distressing symptoms.

Basis of Treatment.

The treatment is founded on the following anatomical and physiological basis:

1. At the synapses there is structural discontinuity of the nerves.

2. The results produced by impulses travelling in a nerve depend on the way the fibre ends and not on any difference in the impulses themselves. "Impulses produced in the optic nerve by light are identical with those produced in the auditory nerve by sound." "The difference recognized by the organism must be due to analysers in the central nervous system."[5]

3. At the synapses different physiological systems come into touch with each other, and so co-ordinate action in diverse systems is possible.

4. At the synapses there is always a spread of the nerve impulse, and the greater the impulse the greater the spread.

With this basis we are working in the following hypoth sis:

As a result of the high explosive with enormous and sudden increase of pressure in the ear, there occurs a dissolution of the permanent auditory pathway, and a spread of the nerve impulse into other adjacent paths. The auditory stimulus no longer reaches its goal and deafness results. Such a dissolution may occur at one or at all the synapses. It may not be complete, and a maximal stimulus may be still able to get through.

To re-establish connexion two things have to be done: (1) To connect up the permanent part, and (2) to stop dissipation; but dissipation is like a bad habit, the longer it has been going on the worse it is to break.

To help, we have the fact that habit and association of activity facilitate transmission of impulses. Nerve impulses tend to pass over an accustomed and long-established path, so the most favourable cases are those in which complete dissolution has not occurred. The most unfavourable are those where there has been complete dissolution and total deafness to tuning-fork, voice, and noise, no matter the intensity or pitch. It may be that this dissipation of the nerve impulses will help to account for the associated nervous phenomena.

Treatment.

In the totally deaf, either in the one or both ears, the method pursued is briefly as follows:

1. Tuning-forks are applied: (*a*) To the bone (for example, mastoid); or (*b*) through resonators, attached to the ear by tube; (*c*) through the air. In our worst cases the time given to (*a*), (*b*), or (*c*) varies with the amount of deafness.

2. The voice is used: (*a*) Through resonators with tube in ear; (*b*) through speaking tubes; (*c*) without any aid.

3. Each period of treatment is very short, for fatigue is rapidly produced. Thus we may have headaches, vertigo, sweatings, etc., and occasionally pain is complained of, if the treatment be too long.

4. As soon as possible carefully graduated physical exercises are given. In exercise the two essentials are short duration and no bending. The treatment (except the drill) is given twice a day in the worst cases; it ought to be given twice in all. In the worst cases, when it is difficult to pass from bone to resonator, we use the piano. We find that at each successive stage we have to use summation of stimuli; thus, not only must the fork on the resonator be kept up for some time, but with the voice we have to repeat the word, but even then there is a marked delay before the response comes. In the later stages the delay is still present. There it appears to be not so much that he does not hear, but that he hesitates to attach the word to the sound, for, if asked what he thinks it is, he frequently answers correctly.

5. As early as possible we ascertain if the semicircular canals are acting, because when there is reaction to the caloric or rotation tests in totally deaf cases we feel justified in continuing treatment for some time.

SUMMARY.

1. The normal stimulus (musical notes or voice) is an adequate stimulus for the nerve and is the best stimulus. Electricity is contraindicated and likely to do harm since it so easily produces vertigo.

2. In the totally deaf, bone conduction is perceived before air conduction. It is essential to differentiate vibrations from musical notes.

3. In these cases summation of stimuli plays an important part in the perception of sound.

4. There is a marked diminution of the duration of hearing along the whole series of forks, both through bone and air. This corresponds and exists *pari passu* with concentric limitation of the fields of vision. Often both improve together. Frequently the field of vision is more retracted on the side having the greater deficiency of hearing.

5. If the conducting mechanism is damaged or destroyed it not only takes longer to get improvement but complete recovery cannot be expected.

6. Prognosis is good as a rule, especially in cases where there is no trauma demonstrable in the peripheral organ, no history of aural vertigo, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases hearing returns but slowly, and, so far as we have observed, not perfectly, even with a normal drum membrane, little if any signs of middle-ear inflammation, and a caloric reaction present.

7. As a result of the concussion due to high explosives there is frequently a trauma demonstrable in the ear. This may be accompanied by neurosis (traumatic neurosis), especially headaches and vertigo. The perception of sound is diminished over the whole normal range; the diminution may be so great as to totally abolish perception of sound. I have not seen a case yet associated with tone islands. What I do find is a diminution all along the scale both for bone and air conduction.

8. As the deafness diminishes there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he be asked to repeat two or three numbers given consecutively, he will repeat the last one; he knows that there were others but did not get them.

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[1] Mott, Lettsomian Lectures, *Trans. Roy. Soc. Med.*, 1916, vol. xxxix, p. 172. [2] Dejerine, *Sémiologie des affections du système nerveux*. Paris, 1914, p. 1123. [3] *Proc. Roy. Soc. Med.*, Otological Section, March, 1916, p. 29. [4] See Mott, loc. cit. [5] Bayliss, *Principles of General Physiology*, pp. 387, 512, 513.

RESULTS OF SCOPOLAMINE-MORPHINE TREATMENT DURING LABOUR IN 150 CONSECUTIVE CASES.

BY

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THE majority of the cases in the present series were conducted at a private maternity nursing home; the remainder at the patients' own homes. I have no experience of this treatment in hospital wards where other patients were present. But from the observations of others it would appear that the results obtained in such wards are not the best; there would seem to be no added risks to mother or infant, but the condition aimed at, namely, complete amnesia, is not attained nearly so often. Thus, Gauss's percentage of complete amnesia is 86, a great many of the cases having been treated in hospital wards. Sir J. Halliday Croom tells me that his hospital cases are not

infrequently failures, but that he never has a failure in private cases.

Of the present series only two cases failed to respond and showed no amnesia. These were patients at their own homes in cottages, were both multiparae, were first seen when the external os was fully dilated, the subsequent course of labour was relatively rapid, and the value of suitable environment was not appreciated or could not be obtained. Five other cases remember the final passing of the head over the perineum or the expulsion of the placenta, but affirm that it was only a knowledge of something occurring during parturition and was not a recollection of "pain." This gives 98.66 per cent. of successful cases of amnesia, and the results in this respect coincide very closely with those of Sir Halliday Croom. For the attainment of these results I am convinced that not only is a nursing home necessary, but a thoroughly trained and competent staff is no less essential.

Another vital necessity is the constant attendance of the accoucheur, not only that neither mother nor infant runs any risk, but because the response by different patients is so variable. It has been my experience that while some patients may be kept in an ideal condition of amnesia by a repetition of the scopolamine in from two to three hours or even longer, others will need the same dosage every hour or hour and a half. In a general way a rapid labour needs a more frequent dosage, but this is by no means invariably the case. Elements of failure are introduced unless the accoucheur is present from the first dose to the completion of labour. A routine dosage cannot be established. Constant exercise of the accoucheur's judgement as to repetition of scopolamine is of paramount importance.

The time required to induce amnesia is very variable. In one case it was complete in twenty minutes, and in five others it was induced in half an hour. On the other hand, I have had two cases in which amnesia was not attained until four hours after the first injection.

Of the 150 cases, 106 were primiparae and 44 were multiparae, that is, 70.66 were primiparae. The ages of the primiparae ranged from 17 to 49. The multiparae included two with their ninth child. Of these cases four were breech presentations, two were transverse presentations; one was almost a typical brow presentation, the actual presenting part being about an inch posterior to the brow; the remaining cases were vertex, in only two of which was the occiput posterior. In three of the mothers there were mitral lesions; in three there was very marked albuminuria—one was in my own practice, the two others were sent to me by other medical men. One of these was a patient aged 49 years. Oedema was general and pronounced, and the patient was therefore kept in bed on arrival until labour began. I saw her at 3 a.m., and gave her the first injection (scopolamine and morphine) at 3.20 a.m. The os uteri was then the size of a shilling. At 8 a.m. the os was fully dilated, and at 9.30 a.m. a living female child was born with no signs whatever of oligopnoea; there was not the slightest hesitation in breathing, though the umbilical cord was twice round the neck. The perineum was very oedematous, and ruptured severely almost on the first pressure of the head. It was sutured, and healed by first intention. The child weighed over 8 lb., and is now 4 months old and well. The other two cases with marked albuminuria also had oedema; each had a living child, one being now 6 months old, the other 16 months.

There were three cases of *post-partum* haemorrhage; all were multiparae, and all had had severe *post-partum* haemorrhage before (one of them with the last two children). It would seem, therefore, to be unjust to attribute the haemorrhage in these cases to the drugs. In all the haemorrhage was quickly controlled by manipulation and the use of pituitrin. One other case had had haemorrhage with a previous child, but although it was certainly in excess of normal during this last parturition it never became really serious. One of the cases had the rare condition of premature detachment of the placenta, and this was responsible for one of the infant mortalities. The placenta could not be felt on vaginal examination, although it possibly encroached on the danger zone.

In the present series of cases there has been no maternal death; of the infants three have died (all stillborn). I may incidentally remark that there has been no infant fatality in my cases since the completion of the 150 cases. This gives an infant mortality of 2 per cent., as against the usual average of 2.25 to 2.5 per cent. in general midwifery practice. Even if these fatalities were due to scopolamine-morphine, neither the maternal nor the infant mortality is as high as the general average. The three deaths were as follows:

1. The case of premature detachment of the placenta mentioned above.
2. A breech presentation which was originally transverse and was turned; the head and both arms were extended, and it was impossible to reach them.
3. A difficult forceps extraction with cerebral or medullary haemorrhage.

As far as I can judge, scopolamine-morphine had not the slightest influence on these three fatalities.

It may be interesting to mention here three other cases of more than ordinary difficulty:

1. The second transverse presentation referred to above occurred in a patient with a flattened pelvis. When the first injection was given the os was three-fourths dilated. Chloroform was also immediately administered, and by combined internal and external version the child was turned to a vertex presentation and the membranes ruptured. Chloroform was then stopped and the injections proceeded with; eight were given altogether in fifteen and a half hours. Uterine contractions remained vigorous the whole time, but, as at the end of fourteen and three quarter hours the head had not yet fully engaged the pelvic brim, I decided on the high forceps operation. The child was extracted with difficulty. It was very vigorous and showed no signs whatever of oligopnoea.
2. A case of flattened pelvis and a beaked symphysis pubis, the beak projecting backwards. The child was extracted with forceps after an anxious consideration as to whether Caesarean section might not be necessary. The head was kept to the left as much as possible and the perineum incised to the left of the median raphe. The patient had been under treatment ten hours, and the child was born living and well.
3. A small round pelvis with a R.O.P. presentation. The patient was under scopolamine-morphine eighteen hours. The occiput was rotated forwards, but tended to return until it was finally rotated forwards at the vulva and passed under the symphysis pubis. The head was very much moulded; the child weighed 8½ lb., was quite healthy, and had no trace of oligopnoea.

Effects on the Child: Oligopnoea.

As, perhaps, no symptom has given rise to so much misgiving as oligopnoea I propose to set out my experience of it. If the treatment is administered as it should be (with the admittedly attendant watchfulness it demands) there is no need whatever for so deep a grade as to produce "blue babies." A slight degree of oligopnoea is certainly not uncommon, though its incidence diminishes with the increased experience of the operator. Marked and persistent cyanosis points to an error of technique or of judgement.

The slight oligopnoea to which I have referred is characterized by the following features: An initial cry at the moment of expulsion, immediately followed by a marked quietude which may persist even for an hour; if the respiration is altered at all it is a little slower and perhaps a little shallower; heart beats continue vigorous and normal in every respect; the child simply seems lazy or tired.

Of the 150 cases under consideration, 23 (15.33 per cent.) showed this slight oligopnoea. But of these 23 cases, three had a second small dose (gr. $\frac{1}{12}$) of morphine—a practice I have long since abandoned. Omitting these three cases we get 13.33 per cent. of slight oligopnoea. Early in 1916 I used eutocine (the detoxicated morphine of Lauret) in four cases with very small doses of scopolamine; in each of these cases the infant was slightly oligopnoeic, and this certainly suggests more than a coincidence, especially as the only three cases where a second dose of morphine was given showed the same tendency. Of the above 23 cases, therefore, 16 were treated exactly as is my present procedure. This gives a slight oligopnoea in 10.66 per cent.

The average time the above 23 cases were under treatment was 6 hours 39 minutes; omitting the three cases in which morphine was given twice and the four cases in which eutocine was used, the remaining 16 were under treatment 4 hours 45 minutes. This, I am convinced, contains the whole philosophy of oligopnoea; if it is to be avoided altogether, morphine should certainly not be given late in labour; or, if given, the morphine should be proportionately diminished in dose. The average length of time during which the cases in my series presenting no oligopnoea were under treatment was 7 hours 35 minutes. The cases in which the infants were at all oligopnoeic, it

will be seen, were the cases of short duration. This clearly indicates that oligopnoea is due mainly, if not entirely, to the morphine. I am not suggesting that this slight degree of oligopnoea is critical, for I have intentionally refrained from interference, though prepared to resort to artificial respiration if necessary, but the condition of the infants was never alarming. Only in two cases have I resorted to artificial respiration—one a difficult forceps extraction, and the other a case in which the cord was three times round the neck of the infant. Both cases recovered.

Effect on the Mother.

I have made it a constant practice to begin this treatment early, often as soon as labour had definitely begun. In a few of the cases there appeared to be slight retardation of the uterine contractions after the initial dose, but after it only. My experience has been that after the second and subsequent doses the contractions have become normal, and in not a few cases really severe. I feel justified in saying this has probably quickly regained the little time that may have been lost, and therefore labour on the whole has not been retarded. Possibly, in the few cases where an initial delay appeared to occur, there was present some slight idiosyncrasy to morphine.

Perhaps the most striking after-effect on the mother is the remarkable absence of exhaustion and shock. After a labour lasting twenty-four to forty-eight hours or more the patient will often sleep a few hours, and on awaking be astonished that labour is over, and have such a feeling of well-being that she cannot realize anything has occurred.

So long as complete amnesia, and not analgesia, is aimed at and maintained, I have no hesitation in saying my experince proves that there is no risk either to mother or infant. If pushed to the slightly further stage of analgesia the risk may be grave; but as the margin between amnesia and analgesia is small, the necessity for constant watchfulness by the obstetrician is all the more emphasized.

The influence on the pulse is interesting. In 11⅔ per cent. of the above 150 cases the pulse-rate was increased; in 36 per cent. it remained the same; in the remaining 52⅓ per cent. it was diminished. In all the cases except two the character of the pulse was at least as good as at the onset of labour; usually it was improved. The two exceptions were cases complicated by influenza and an acute attack of cholelithiasis respectively.

While my next observation may not be of any particular technical interest, it is certainly of some moment from a national point of view at the present time. In this series of 150 cases I have certain knowledge that in nine the parents had resolutely refused to entertain the idea of a child. Hearing of the scopolamine-morphine treatment, they decided the time was ripe to embark upon the responsibilities of parentage. The result is an increase of 6 per cent. in the birth-rate in this series. This figure three times covers the infant mortality at birth in the 150 cases, and is rather significant.

THE INTRAVENOUS INJECTION OF EUSOL IN THE TREATMENT OF GENERAL SEPSIS,

AS ILLUSTRATED BY TWO CASES OF SEPTIC OTITIC THROMBOSIS OF THE SIGMOID SINUS.

BY

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THE method of treating generalized sepsis by the injection of the blood with a solution of hypochlorous acid in the form of eusol was introduced by Lorrain Smith, Ritchie, and Rettie, who described the recovery under this form of treatment of a case of grave puerperal septicaemia.[1] They pointed out that the most probable interpretation of the result was that the hypochlorous acid destroyed toxin circulating in the blood, and that there was no evidence that the eusol injected acted as a bactericide.

The following two cases illustrate the application of the method to the generalized sepsis which follows otitic thrombosis of the sigmoid sinus. They are examples of somewhat different types of sepsis. In the first, after the operation there was, apart from a patch of pleurisy, no sign of the development of secondary foci of infection. The symptoms of blood sepsis were, however, very marked, and the patient had passed into a desperate condition; the treatment by eusol injection was applied at this stage. In the second case a large focus of sepsis developed in the right ilium. The injection of eusol produced only temporary benefit. When this focus was drained, however, the patient recovered.

It may be concluded that the presence of a large septic focus is a condition which cannot be alleviated by intravenous injection of eusol. To neutralize toxin in the blood, even by repeated injections of eusol, is insufficient to control the toxaemia in such a condition, because the local focus still remains active, and continually adds new toxin to the circulation. The contrast between these cases furnishes a suggestion as to the type of septic infection in which eusol injection is of value.

CASE I.

R. W., male, aged 6 years, was first seen on October 8th, 1910, suffering from chronic discharge from the right ear. The right external meatus contained pus and a polypus. The boy was sent to the ward for admission, but, as he cried, his mother refused to leave him. He was brought back six years later (April 7th, 1916) complaining of pain in the right ear of three weeks' duration. He had had a rigor when the pain began, and now suffered from pain in the neck, frontal headache, drowsiness, and mild delirium. There was no history of recent vomiting or giddiness.

On admission the temperature was 99° F., the pulse 100, and the respirations 24. The boy looked frightened, restless, and kept his head flexed; the tongue was moist but slightly furred. There was still a polypus in the right meatus and tenderness was present on pressure one inch behind the right mastoid.

Functional examination of the cochlear apparatus showed that the right ear was quite deaf (complete deafness with the noise apparatus in the good ear). Examination of the vestibular apparatus showed complete loss of reaction, but there was no abnormal nystagmus and no loss of balancing. This pointed to an old destruction of the inner ear.

First Operation.

On the evening of admission the temperature rose to 102.4°, and on the following day the first operation was performed (J. S. F.). The mastoid cortex showed two large holes through which cholesteatoma protruded, but there was no subperiosteal abscess. In removing the mastoid cortex the sigmoid sinus, which was exposed in the posterior part of the greatly enlarged mastoid cavity, was injured in the region of the upper knee and bled freely. After controlling this haemorrhage the radical operation was completed—the malleus and incus being absent. It was now seen that the lateral semicircular canal had been opened by the cholesteatoma. Accordingly the labyrinth operation (Neumann) was performed. The sigmoid sinus was not further investigated at this time. The operation cavity was packed with iodoform worsted and the wound left open.

The boy had a good night; no rigor or vomiting. The head on April 9th was still tucked forward. At 8 p.m. the temperature rose to 104.4° F.

On April 10th blood was taken from an arm vein for culture. The report received later stated that a Gram-positive staphylococcus and a Gram-negative bacillus were present. On lumbar puncture the fluid spurted out under great pressure, but was quite clear, and a report received later stated that there was no excess of cells and no organisms on culture.

Second Operation.

As the patient's general condition was unsatisfactory and the temperature swinging, the lateral sinus was exposed in a backward direction until healthy wall was reached. The jugular bulb end of the sinus was also further exposed. The anterior wall was slit up and a partly organized clot found. Free bleeding was obtained from the upper end, which was occluded by packing. Towards the bulb apparently healthy red clot was reached.

On April 11th he felt better, and the temperature was 98°, but next day it rose at 4 p.m. to 103°, and at 8 p.m. to 105° F.

Third Operation.

On April 13th the right internal jugular vein was exposed and found to be clotted down to the junction with the common facial. The vein was divided between ligatures and the upper end opened and stitched to the skin. Both mastoid and neck wounds were left open. On April 15th his condition was fairly satisfactory. The jugular bulb was washed through from mastoid wound to neck.

On April 18th and 19th the evening temperature was elevated, and on April 20th it reached 104° F. The wounds showed no

reaction. On April 21st, under a general anaesthetic, blood was again removed for culture, and the presence of a Gram-p si ive streptococcus, a Gram-negative bacillus, and a Gram-n g tive diplococcus reported.

n attempt was now made to inject eusol in the usual way into a vein, but, owing to the collapsed state of the veins, the procedure failed. It was noted that whenever iodine was applied to the skin over the cubital, cephenous, or external jugular veins these vessels at once disappeared. In the evening the temperature rose to 102.2°.

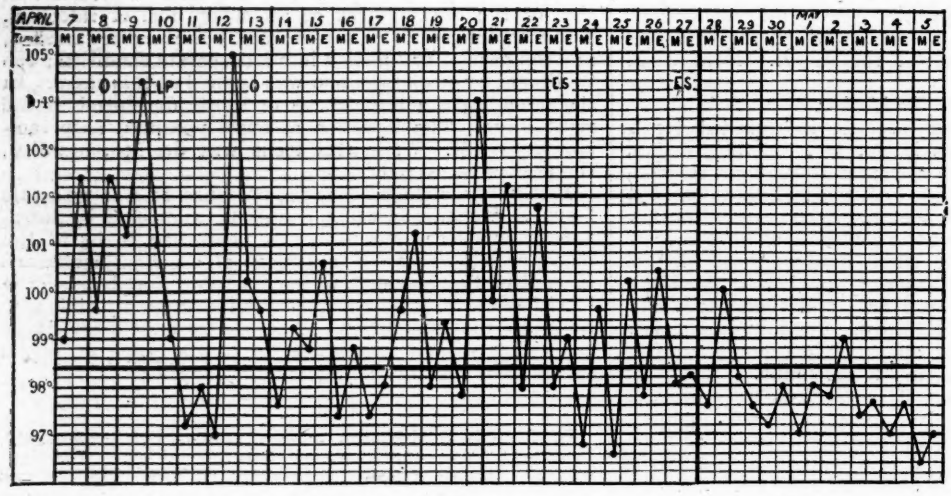

CHART 1.—R. W. O. = Operation. L.P. = Lumbar puncture. E.S. = Intravenous injection of eusol and saline. On April 7th, urotropin gr. v was given four-hourly.

On April 23rd the temperature was still elevated and the patient apparently in a dying condition. As a last resort the median cephalic vein was cut down on and 60 c.cm. of eusol and lukewarm saline solution (equal parts) were injected by Dr. Campbell. Next day the patient looked better; the tongue was clean and moist and he had a good appetite. On April 27th it was noted that since the injection of eusol the evening temperature had not been so high as formerly, but had risen each night a little higher than on the preceding evening (see Chart). Accordingly, a second injection of eusol was given by Dr. Campbell after an arm vein had been exposed under general anaesthesia. On May 3rd it was noted that there had been satisfactory progress for the last five days, but on May 5th the boy complained of slight pain at the left base, and the exploring needle withdrew a little serous fluid which contained a Gram-positive diplococcus and a Gram-negative bacillus. On May 9th a second puncture of the left pleural cavity showed that the fluid had been absorbed.

On May 15th a plastic operation to close the wound behind the left ear was performed; the neck wound had now been healed for some time.

The case illustrates the danger of refusing operation when chronic middle-ear suppuration is associated with cholesteatoma and aural polypus. The onset, six years later, of septic thrombosis of the sigmoid sinus was typical—earache, shivering, and stoppage of purulent discharge.

The cessation of the discharge appears to us to have been due to the toxic condition of the patient and the consequent want of reaction, and not, as is usually supposed, to any obstruction to the outflow. It was obvious from the history, functional examination, and conditions found at operation that the right labyrinth had been destroyed for some considerable time. The free bleeding from the sigmoid sinus at the first operation led to regrettable delay in the opening up of this vessel. Further, as subsequent events proved, it would have been better if the jugular vein had also been ligatured at the same time. Lumbar puncture revealed the presence of benignant serous meningitis, which was no doubt associated with the condition of the sinus and of the dura mater of the posterior cranial fossa. It was obvious at the second operation that the sinus thrombosis must have existed for some time.

In spite of the clearing out of the sigmoid sinus and the jugular ligature, the patient on April 23rd appeared to be in a dying condition. The improvement following the first intravenous injection of eusol was very marked, while after the second injection recovery was rapid and was only interrupted for a day or two by a slight attack of pleurisy (infarct?).

CASE II.

J. M., male, aged 16 years, was admitted on January 25th, 1916, suffering from discharge from the right ear of three years' duration. For the last five days he had had pain in the right ear and right side of the head, and had suffered from shivering and vomiting. The temperature on admission was 98° F., and the pulse 72. The patient looked ill, and the tongue was furred though moist.

Examination showed pus in the right external meatus, with marked mastoid tenderness. Owing to narrowing of the meatus the drumhead could not be seen. Functional examination revealed middle-ear deafness on the right side, with a normal vestibular apparatus. In the afternoon the temperature rose to 101.6°, and the pulse was feeble and irregular.

First Operation.

On operating at 5.30 p.m. the mastoid cortex was found normal, while the antrum contained granulation tissue. The attic and aditus showed cholesteatoma, and the incus was absent. The labyrinth wall was healthy. On removing the bone in a backward direction from the antrum, a large perisinus abscess was evacuated (*Staphylococcus aureus* on culture). The sigmoid sinus was freely exposed, and granulations noted on its anterior wall. The sinus was painted with iodine and slit up. Free bleeding was obtained from the torcular end, but not from the bulb end. (Cultures from the clot yielded (1) *Staphylococcus aureus;* (2) a Gram-positive streptococcus; (3) a Gram-positive diplobacillus.) As the clot in the region of the bulb appeared to be healthy, the internal jugular vein was not ligatured. The wound was left open. At the end of the operation a blood culture was made, and the report received later showed that *Staphylococcus aureus* was present.

He had a bad night, and next day complained of frontal headache. At 4 p.m. the temperature rose to 102°. Lumbar puncture showed that the cerebro-spinal fluid was not under tension. The fluid, however, did not reduce Fehling's solution, while direct films showed a few Gram-positive cocci. No growth was obtained on culture.

On January 28th he complained of pain at the base of the right lung and in the right hip. A needle was inserted through the pleura, but no fluid was withdrawn. On January 30th he felt sick and complained of backache and of double vision. As he was very nervous the wound was dressed under a general anaesthetic; it looked inactive, and the sinus wall was sloughy. Free bleeding was obtained from the upper end of the sinus on removal of the plug.

Second Operation.

On January 31st the temperature rose to 102° at 10 a.m. The internal jugular vein was ligatured after tying off the common facial. A clot was removed from the upper end of the vein, which on culture yielded *Staphylococcus aureus* along with streptococci.

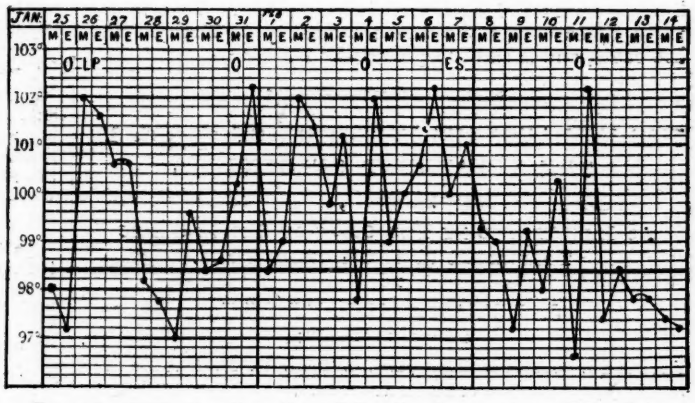

CHART 2.—J. M. O. = Operation. L.P. = Lumbar puncture. E.S. = Intravenous injection of eusol and saline. On January 26th, urotropin gr. x four-hourly. On February 10th, champagne ʒ ij four-hourly; calcium lactate gr. v four-hourly.

On February 2nd it was noted that the patient had a characteristic "sweetish" septic smell. He still complained of pain in the right hip, and the right ilium was very tender. The movements of the hip-joint were free. The temperature on this morning was 102° F. The patient was examined by Mr.

Struthers, who found no redness, swelling, or fluctuation in the region of the hip, and advised against interference at that time.

On February 4th it was noted that the temperature was still rising each evening. Fluctuation was evident over the right ilium, and an incision evacuated pus which on culture yielded the *Staphylococcus aureus*. A drainage tube was inserted. Pus was daily evacuated on washing through the jugular bulb. The temperature continued to swing, and the patient still complained of pain in the right hip.

On February 7th he complained of pain in the right knee. Professor Lorrain Smith was consulted regarding the intravenous injection of eusol, and at 5 p.m. blood was withdrawn from an arm vein, and thereafter 50 c.cm. of eusol and normal saline were injected. (On culture the blood yielded a Gram-positive staphylococcus and a Gram-positive bacillus.)

Third Operation.

On February 11th it was noted that the temperature was still swinging, that the wounds showed little reaction, and the patient still complained of severe pain in the right hip, and kept the right hip and knee joints flexed. Mr. Struthers made an incision over the right ilium, and exposed the bone freely. When the gouge was inserted pus oozed out of the bone. The ilium was accordingly pierced, and a free flow of pus obtained from a large abscess between the anterior surface of the ilium and the iliacus muscle. The hole in the bone was enlarged, and the abscess cavity washed out with eusol. Two drainage tubes were inserted, and thereafter the cavity was syringed out with eusol twice daily.

On February 15th the temperature was normal, the wounds granulating well, and the patient could keep his right leg extended. Next day he vomited in the morning, and was rather drowsy. The optic discs were examined by Dr. Traquair, who found great congestion of the veins and oedema.

On February 25th it was noted that the temperature continued normal, that drowsiness had passed off, that the neck and hip wounds were closing rapidly, and that the general condition was satisfactory.

Fourth Operation.

On March 27th the wound behind the right ear was closed, and the patient was dismissed on April 15th with all wounds healed, except for a small opening behind the right ear.

The patient was a feeble, badly nourished boy. The case was one of extradural perisinus abscess, with secondary thrombosis of the sigmoid sinus. The chief infecting organism appears to have been the *Staphylococcus aureus*. As events showed, it would have been better had the jugular vein been ligatured and divided at the first operation; but the question "when to ligature the jugular" has not yet been finally decided.

The presence of bacteriaemia was not known at the time of the first operation, which was performed shortly after admission. Symptoms of metastasis in the right ilium developed two days after operation, but the condition was not definitely diagnosed till some days later. The fact that the metastasis occurred in bone is what we should expect considering the nature of the infecting organism (staphylococcus). As far as we know, no satisfactory explanation has been given for the fact that in staphylococcic pyaemia metastases occur in the bones, whereas in streptococcal pyaemia of otitic origin they occur in the lung—pleuropneumonia and empyema. It has been suggested that small emboli may pass through the pulmonary capillaries, whereas large ones are arrested there. Further, the bone marrow may be a *locus minoris resistentiae* for the staphylococcus. In view of the condition of the right ilium, it was only to be expected that ligature of the jugular vein and intravenous injection of eusol should fail to stop the disease process. It was only when a large hole was made in the ilium and the abscess evacuated that the patient began to improve. Recovery was interrupted for a day or two by an attack of cerebral oedema, the origin of which is somewhat difficult to explain in view of the time which had elapsed between the complete blockage of the sigmoid sinus and the onset of the drowsy condition associated with oedema of the optic discs. Choked disc is commoner in sinus thrombosis than in temporo-sphenoidal or cerebellar abscess. Ruttin attributes the condition of the discs to engorgement of the cavernous sinus due to blockage of the superior and inferior petrosal sinuses following obstruction of the sigmoid sinus and jugular bulb respectively.

If the superior longitudinal and straight sinuses always divided into equal branches at the torcular, it is probable that little disturbance would arise from thrombosis of one sigmoid sinus or ligature of one internal jugular vein. Ruedinger, however, has shown that the blood from the superior longitudinal sinus as a rule flows mainly into the right lateral sinus, which, in most cases, is larger than the left. The straight sinus at times becomes continuous with the left lateral sinus, but as a rule it divides—the smaller branch going to the right lateral sinus and the larger to the left. Thrombosis of one lateral sinus or ligature of one internal jugular vein (right or left respectively) may thus interfere with the venous return from (1) the surface of the brain in cases in which the superior longitudinal sinus becomes continuous with the right lateral sinus; or (2) the deeper parts of the brain when the straight sinus becomes continuous with the left lateral sinus. Linser has shown that ligature of the right internal jugular vein in cases where it is much larger than the left may produce fatal cerebral oedema.

[The writers wish to express their best thanks to Professor Lorrain Smith and Dr. Theodore Rettie for their advice and assistance with regard to the intravenous injection of eusol; to Miss Mabel Fitzgerald for her careful investigation of the bacteriology of these two cases; and to Dr. Logan Turner for his kind permission to record the histories of the patients.]

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, November 13th, 1915.

ACUTE HAEMORRHAGIC PANCREATITIS: LAPAROTOMY: RECOVERY.

BY

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CONSIDERING the gravity of this disease, the difficulty in diagnosing it before operation, and its high mortality, the following account of a case which recovered under surgical treatment may be of interest.

R. L., millworker, female, was sent to the Huddersfield Royal Infirmary by Dr. Brown, suffering from an acute abdominal catastrophe, thought to be a perforation of an ulcer of the stomach.

Previous History.

Her general health had been fairly good, with the exception of dyspeptic symptoms, from which she had suffered since early life, "bilious attacks" and the rising of sour fluid into the mouth being frequent. Lately these symptoms had not been so marked, and for months before the present illness she had been free from them until two or three days ago, when she had an attack which caused her to stay in bed for a day. She had always been a hard worker, and stated that tea and toast had been a great element in her meals. She was in the hospital in the summer with a small tuberculous abscess in the neck.

History of Present Illness.

On November 10th, 1916 (the day before admission), while at work in the mill, she was lifting a basket, and in the act of stooping felt "the blood rush to her head," and a hard swelling rise up in the body. To ease herself she undid her corsets; there was a little pain and she felt unwell, and decided to go home. Her fellow workers state that she looked very ill. On the way home she vomited several times, and had severe pain in the back between the shoulders; on reaching home she was so ill and weak that she could not stand; her sensations were mixed, and she could scarcely describe them; she had "a burning all over," and an inclination to cry out. The next morning she again felt "something rise up inside her," the pain increased, and became localized in the pit of the stomach, and the abdomen felt tense and swollen.

Condition on Admission.

Pulse 160, temperature 98.8°. She looked extremely ill and was in great distress; the abdomen was acutely distended (especially above the umbilicus), rigid, and tender. The breathing was entirely thoracic; she complained of pain in the epigastric region. She was retching a little, and there was tetany in both arms, increasing in spasms every few minutes.

She presented the picture of a very acute abdominal catastrophe, and a provisional diagnosis of a perforated ulcer of the stomach was made and immediate laparotomy decided upon.

Operation.

Within an hour of admission she was anaesthetized and the abdomen opened by an incision above the umbilicus. On opening the peritoneum, a quantity of blood-stained fluid escaped, and a very greatly distended stomach presented through the wound; there was obviously no perforation in it. It was so much distended that, in order to save time and to prevent damage in returning it, I punctured with a large trocar; it collapsed, the distension being due entirely to gas. The small hole was closed with an encircling suture and the stomach easily returned to the abdominal cavity. On further examination, fat necrosis was seen in the great omentum and the transverse mesocolon. The pancreas was enlarged and there were extensive haemorrhages in this region and in the transverse mesocolon extending to the large intestine; the

mesocolon was oedematous. The gall bladder was atrophied to a fibrous cord and apparently contained some calculi. The peritoneal cavity contained a fair quantity of blood-stained fluid; so far as could be made out, the rest of the abdominal organs were normal. The whole condition looked hopeless, and, as the patient was seemingly at the point of death, I rapidly closed the wound in the endeavour to get her off the operation table alive.

She was removed to the ward, placed in the Fowler position, and rectal salines given. For about a week her condition was most distressing, the pain and abdominal distension being very acute; the restlessness and pain were so severe that I was compelled, against my almost invariable practice in abdominal cases, to keep her under morphine. The bowels, in consequence, did not act until the fourth day, in spite of the free administration of calomel, magnesium sulphate, and turpentine enemata; eserine was given with, I think, good results.

About the tenth day diarrhoea became troublesome; this was relieved by bismuth. After this her convalescence was uneventful, and she left the hospital on December 5th.

Owing to the urgency of the case and the necessity for immediate operation, a specimen of the urine was not obtained, but the urine passed immediately after operation contained a small quantity of sugar, which soon disappeared.

I saw the patient a few days ago, three months after operation, walking briskly in the street and looking the picture of health; she tells me that she feels quite well, but still has the dyspeptic symptoms, and the sour rising in the throat which she had previous to operation.

Though the diagnosis was incorrect and the operation consisted only of a rapid laparotomy and puncture of the stomach, the patient recovered; whether this was *post* or *propter hoc* one cannot say, but she certainly was the most ill patient, both before and after operation, that I have ever seen recover.

I have to thank Mrs. Somerville for her assistance at the operation and for the after-treatment, and Mr. Bradford for the notes on the case.

APPENDICITIS CONSEQUENT ON ACUTE PHARYNGITIS.

By CHARLES BENNETT, M.B.,

WESTERN INFIRMARY, AND ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.

THE case described below possesses features which, although not of a new type, are, in my opinion, noteworthy. Reliable statistics of appendicitis are not too numerous, and the need for them in order to trace the disease to its sources is undisputed. By the findings in this case, both at the operation and at the subsequent histological examination, I am convinced that it is an example of infection of the appendix from a distant infective condition, namely, acute inflammation of the fauces and pharynx, and that the infection was conveyed by the blood stream. Although this cause is recognized in general terms throughout the literature yet, judging from the number of detailed cases on record, instances of it are either uncommon or have for the most part escaped observation.

G. R., female, aged 25, who was admitted to the Western Infirmary, Glasgow, on January 3rd, 1917, gave the following history: On December 30th, 1916, she began to suffer from a catarrhal cold accompanied by "sore throat." On December 31st pain commenced in the abdomen. At first this was felt in the epigastrium, but that same evening it settled in the right iliac fossa, whence it occasionally radiated to the umbilicus. There was no vomiting. Her condition remained thus until her admission to hospital, when, in the absence of the visiting surgeon, Major Duncan Macartney, I was called to see her.

Her general appearance suggested more a thoracic than an abdominal condition. The face was deeply flushed, respirations were rapid, and there was considerable restlessness. Temperature was 102° F., and the pulse rate about 140. Examination of the chest proved negative. The tongue was white with pink spots, while the fauces and pharynx appeared intensely inflamed. The tonsils were not enlarged. There was marked rigidity of the right rectus muscle of the abdomen and tenderness was general over this cavity, but most complained of in the right iliac region.

I opened the abdomen by the gridiron method. The terminal twelve inches of ileum, the caecum, appendix, and a part of the ascending colon were of a deep red colour, while the bowel proximal and distal to these parts was normal in appearance. The redness seemed to map out exactly the distribution of the ileo-colic branch of the superior mesenteric artery. The pelvic organs were normal.

The appendix, which was only slightly swollen, and in which a good lumen could be felt, was removed, and the abdomen closed.

As I expected, the temperature did not immediately settle, but swung irregularly until the fourth day, and about this time also the throat condition subsided. She was dismissed well on January 17th.

As all the circumstances suggested to me that inflammation of the appendix had commenced in a plane nearer peritoneum than mucosa, the organ was sent to Dr. G. Haswell Wilson, acting clinical pathologist to the infirmary, for histological examination. In his report, after referring to evidence of previous inflammatory mischief, he says: "The serous covering and the meso-appendix are intensely inflamed, and show early purulent infiltration."

The formation of pus in this plane with comparatively normal coats nearer the lumen is significant.

Dr. Wilson states that in his opinion the histological evidence supports my view that the infection came from a distance, and the throat condition was a possible causative precursor.

Of course no general conclusion can be drawn from one or a very few cases; and despite the evidence of the source in this instance it seems to me improbable that more than a small proportion of cases can be due to a similar cause. On the other hand, the possibility of such a cause is already admitted by many, and a cause affecting even a small proportion is not to be set aside. Personally I believe that when the etiology of appendicitis has been determined we shall find no one universal cause, but rather that the cases resolve themselves into a number of groups with a definite cause for each.

I am aware that the possibility of appendicitis being caused by infection carried through the blood stream is denied by a few observers. Perhaps the most dogmatic of statements lately made on this head is by Klotz,[1] of Ottawa, who says:

> In recent years some authors have claimed that appendicitis is the outcome of a blood distribution of bacteria gaining entrance to the body tissues at some distance from the appendix. The tonsil has been spoken of as the portal of entry. A study of human appendicitis can give no support to this theory. It is rare to find a metastatic abscess of the appendix, and the character of this lesion is vastly different from clinical appendicitis.

Nevertheless, I am satisfied that my case was of metastatic nature. The signs and symptoms were precisely those of acute appendicitis. Even though there was also infection of the bowel in the immediate neighbourhood, the appendix was the focus of danger, and claimed principal attention.

REFERENCE.

[1] *Canadian Medical Association Journal*, December, 1916.

A NOTE ON THE USE OF B.I.P. AFTER BONE-GRAFTING.

By CAPTAIN H. S. BRANDER, R.A.M.C.

THE technique of the operation of bone-grafting rendered necessary by the character of wounds caused by modern projectiles requires careful consideration owing to the fact that the cicatricial tissue is often extensive and the blood supply consequently poor. As the scar tissue must be undermined in order to expose the end of the bone which is to be grafted, and the risk of relighting infection in a wound which has been healed for months avoided, I venture to record my experience with the use of "Bipp" following a bone-grafting operation. This I do because, in my opinion, the strictest aseptic precautions *alone* are not always sufficient.

Corpl. B. P., R.A.M.C., aged 26 years, wounded by shrapnel at the Lancashire landing, Gallipoli, on July 11th, 1915, was transferred to a military hospital in this country on July 27th, 1915. He had a compound fracture of the left radius. A skiagram showed that the bone was fractured in two places—about the junction of the middle and upper thirds and at the junction of the lower and middle thirds. From the history of the case it is evident that there had been much purulent discharge from the wound due to necrosed bone. The sequestrum was removed on October 13th, 1915, and the wound healed about eight weeks afterwards. The patient was discharged from the army on June 8th, 1916, as medically unfit.

As a Chelsea pensioner he applied for treatment at the War Hospital, Keighley, and was admitted under my care on November 13th, 1916. On the externo-anterior aspect of the left forearm there was a healed scar 4 in. by 2½ in., very

adherent to underlying structures. There was marked wrist-drop and apparently considerable loss of muscular tissue. The proximal and distal ends of the radial fracture could be readily felt at about a distance of two inches from each other. This was well seen also in the skiagram.

Employing strict aseptic precautions, I operated on November 26th. I took the graft from the tibia, and followed Albee's technique throughout, except that I used a Hey's saw instead of a motor-driven circular saw. A long curved incision was made on the front of the forearm, well away from the scar. This was completely undermined, and found to be adherent to the fractured ends of the radius, most of the muscular tissue in the proximity of the fracture having been destroyed either at the time of the wound or by subsequent sloughing. On completion of the operation the forearm was put up on a splint midway between pronation and supination.

At the end of a week I dressed the wound for the first time and found that, although the skin incision had healed by first intention, part of the original scar tissue about the size of a five shilling piece had sloughed, exposing about an inch of the graft. My first impression was that the operation was doomed to failure. Employing very strict technique, according to Rutherford Morison's method, however, I applied "Bipp"[1] to the sloughing surface, and renewed the "Bipp" every ten days, with the result that the skin wound had healed nine weeks after operation, and the union of the graft to radius was strong. The skiagram showed the graft in excellent position.

The use of "Bipp" after this bone-grafting operation was suggested to me by the excellent results I had by it in compound comminuted fractures, hernia cerebri, etc.

In this connexion I wish to take the opportunity of thanking Lieutenant-Colonel Sir Berkeley Moynihan for advising and encouraging me—on one of his official visits of inspection at this hospital—to persevere with "Bipp" in the treatment of troublesome comminuted fractures. Also Lieutenant-Colonel Robert Jones for the opportunity he gave me of seeing a bone-grafting operation at the Military Orthopaedic Hospital, London.

A CASE OF GAS GANGRENE ASSOCIATED WITH B. OEDEMATIENS.

By E. J. DALYELL, M.B.

[From the Bacteriological Laboratory, Hôpital Auxiliare 301 (Scottish Women's Hospital), France.]

THE following paper gives an account of a case of gas gangrene associated with *B. oedematiens* (Weinberg), some notes on anaërobic infections observed in routine examination of wounds.

J., a French soldier, aged 23, was wounded on September 14th, at 4.30 p.m., at Maurecourt, by shell fragment in the left thigh. The first dressing was applied soon afterwards, and the wound was dressed daily until admission to the Scottish Women's Hospital at 1 p.m. on September 17th, when the temperature was 100.4° and the pulse 90. The face showed a yellowish pallor but the general condition was good. High up on the inner side of the left thigh was a perforating subcutaneous wound, and the skin between the wounds of entrance and exit was gangrenous; a purulent discharge present was slightly offensive, and there was slight crepitation in the neighbourhood of the wound, and localized swelling of the thigh above the wound. The *x*-ray report was to the effect that there was no fracture of the femur and no foreign body in the limb. The bacteriological report was that films of the purulent discharge showed streptococcus, *B. perfringens*, and other sporing anaërobes.

First Operation.

On September 17th, at 7 p.m., under chloroform, the gangrenous skin between the wounds was excised, the muscles below were found to be gangrenous and crepitant, and portions of the sartorius and adductor longus muscles were cut away; a piece of *capote* was removed. The wound was dressed with chlorinated soda, and continuous irrigation with Carrel's solution arranged.

September 19th: Wound looking clean; temperature 101°, pulse good; patient still very yellow.

September 20th (evening): Patient sleepless and complaining of pain in leg; some swelling of muscles present in the wound; tissues above wound swollen, but no general swelling of thigh or of abdomen; pulse weak and rapid.

Second Operation.

On September 21st, at 9 a.m., the patient was very much collapsed, the wound offensive, the temperature 98°, and the pulse 120. Muscles gangrenous and gaseous; swelling extending up to Poupart's ligament due to firm gelatinous exudate in and between muscles. Slight amount of swelling present on abdominal wall. Leg amputated above wound. Artery normal, but gangrene noted in muscles superficial and internal to artery. The patient did not rally after operation and died at 1 p.m. The temperature throughout the illness was not higher than 101° F.

Bacteriological Examination.

A portion of gangrenous muscle, removed on September 21st, was firm, oedematous, and foul smelling. Fragments of muscle fibre and some serous exudate from the mass of muscle were inoculated into three broth tubes containing pieces of coagulated egg-white. The tubes, which were at a temperature of 100° C. when inoculated, were kept at 100° C. for one minute, three minutes, and five minutes respectively, and then rapidly cooled. From each heated broth tube a series of five deep agar tubes was inoculated by introducing five drops of heated emulsion into the first tube, mixing well and conveying five drops of the mixture to the second tube, then inoculating the third tube from the second, and so on.

In twenty-four hours the series of tubes inoculated from emulsions heated for one minute and three minutes showed aërobic organisms present and numerous colonies of anaërobes. These were not further investigated. The third series, inoculated with material heated for five minutes, showed in the first and second tubes a scanty growth of colonies of one type only, and the remaining tubes were sterile. The unfamiliar appearance of these colonies suggested further investigation, and in process of identifying them the following observations were made.

I. *Cultural Characters.*

Attempted subcultures from agar shake culture into *glucose broth* and *egg-white broth* failed altogether in the ordinary Bulloch jar anaërobic apparatus, but succeeded under conditions of more strict anaërobiosis (as described later) and showed peculiar appearances. In thirty-six hours growth was visible as clear fine flocculent masses throughout the liquid; in forty-eight hours the fluid had cleared and the culture had settled in a fine cloud at the bottom of the tube. The cloud diminished in size and became more opaque, and in four days was reduced to a fine granular deposit at the bottom of a tube of clear liquid. A faint fetid smell was present in broth cultures after thirty-six hours.

The corresponding microscopical examination showed that the growth in thirty-six hours consisted of auto-agglutinated masses of rather long, non-motile, Gram-positive rods, the majority of which were curved or bent, with few straight forms; later cultures showed loss of Gram-fast property in many of the organisms and the appearance of numerous spores, large, oval, and sub-terminal; still later the granular deposit at the bottom of the tubes consisted of spores detached from the rods which were present only as faintly staining fragments.

On *serum agar* a scanty surface growth was present of flat, clear colonies with finely lobulated borders. In *deep glucose agar* there appeared after thirty-six hours small white colonies with opaque centre and irregular clear border; under the low power of the microscope could be noted the varying opacity of the colony from centre to edge, and the finely filamentous margin. Gas formation was scanty or absent altogether.

Stained specimens from deep agar colonies showed Gram-positive bacilli, often with irregular Gram-negative patches in their length. Straight forms were rare, and individual bacilli were curved, bent, twisted, or coiled, irregular in outline and variable in length.

In *alkaline meat medium* (prepared according to M. Robertson's[1] formula) after five days' anaërobic incubation, there was abundant acid and gas production, without putrefactive change or digestion of the medium. *Spores* were readily produced in this medium and stained with great difficulty, after prolonged heating by the Ziehl-Neelson method.

These observations, and the character of the case from which it was obtained, suggested that the organism was identical with the *B. oedematiens* described by Weinberg and Séguin,[2] and isolated by them from similar cases in 1915.

II. *Inoculation Experiments.*

A serum test was therefore made with guinea-pigs, using for the purpose anti-*oedematiens* horse serum, prepared by Dr. Weinberg, and kindly supplied by him from the Pasteur Institute.

A thirty-six-hour unheated culture of the organism in bouillon was used, and the injections were made deeply into the thigh muscles of guinea-pigs A, B, C, and D. A received an injection of 2 c.cm. of culture; B an injection of 1 c.cm. of culture; C received an injection of 1 c.cm. of culture + ½ c.cm. of anti-*oedematiens* horse serum; D received 1 c.cm. of culture + ½ c.cm. "anti-*Vibrion septique*" horse serum (Weinberg).

[1] The formula given for "Bipp" by Mr Rutherford Morison (*Lancet*, 1916, vol. ii. p. 268) is bismuth subnitrate, 1 oz. by weight; iodoform, 2 oz. by weight; liquid paraffin sufficient to make a thick paste.

The doses for C and D were mixed with the respective serums and allowed to stand at room temperature for thirty minutes before injection.

A showed severe illness and considerable swelling of the thigh in four hours, and died within twelve hours.
B, Thigh very much swollen in six hours; the animal died during the night.
C showed no effects whatever of inoculation.
D, Thigh very much swollen in six hours; the animal died during the night.

The conclusion drawn was that ¼ c.cm. of anti-*oedematiens* serum mixed with 1 c.cm. of culture thirty minutes before injection had prevented the infection of the animal.

The *post-mortem* appearances in A, B, and D were identical. At the site of inoculation the thigh muscles were dark, haemorrhagic, slightly fetid, and gangrenous, and were separated from the skin by a dense gelatinous blood-stained oedema. A similar oedema, but clear and not blood stained, spread from the thigh over the abdomen and thorax. When incised, the oedema was sufficiently firm to remain solid, without any outflowing of fluid or alteration in consistency. A minute quantity of gas bubbles was present at the spreading edge of the oedema and in the depths of the gangrenous muscle, but very small in amount compared with the oedema produced. Close to the site of inoculation and in the gangrenous muscle the curved Gram-positive sporing bacilli were present, but in preparations made from the oedema at a distance from the wound they were rarely detected.

In all the features of morphology, cultural character, auto-agglutination, and serum tests, the organism conformed to the description given by Weinberg and Séguin of *B. oedematiens*.[3] Cultures were sent to Dr. Weinberg at the Pasteur Institute for examination, and were pronounced by him to be identical with the *B. oedematiens* of Weinberg a d Séguin.

During September a similar organism was observed in five other cases, but was not isolated in pure culture. The difficulty in isolating the bacillus is associated with the necessity for a very strict anaërobiosis, which can be effectively provided by the following method employed at the Pasteur Institute for anaërobic cultivation in fluid media. The test tube containing fluid medium is inoculated and is then heated above the level of the fluid and drawn out into a thin neck. The mouth of the tube is unaltered, and the cotton-wool plug is pushed down towards the constriction and the tube attached to a pump and exhausted. During the process of exhaustion gentle heating of the fluid drives out all air dissolved in the liquid, and the tube is then sealed by Bunsen flame at the constricted neck, and is ready for incubation.

Clinically *B. oedematiens* appears to be associated with a specially severe form of gas gangrene, characterized by acute general intoxication and extensive spreading solid oedema, with little gas formation other than that due to associated organisms in the neighbourhood of the wound. It is probable that a close search under conditions of satisfactory anaërobiosis would demonstrate its presence in many cases of gas gangrene.

REFERENCES.
[1] *Journ. of Path. and Bact.*, 1916, vol. xx, p. 327. [2] *Comptes rendus de Soc. de Biol.*, 1915, T. 78, p. 507. [3] Loc. cit.

NOTES ON SOME RECENT CASES OF DYSENTERY.

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DURING the months of December, 1916, and January, 1917, a good many convalescent cases of dysentery were admitted from France to the 2nd Southern General Hospital, and of these eighty have been under my care. All these cases were transferred with a diagnosis of "dysentery," and with many of them short accounts of the phenomena which occurred overseas were also sent. From these and the histories given by the men themselves the phenomena appear to have been fairly uniform in character. There was a sudden onset of the frequent passage of blood and mucus per rectum, with tenesmus, frequently preceded for a few hours and generally accompanied by abdominal pain and tenderness. This gradually lessened under treatment, and in most cases subsided in about a fortnight. The disease, with very few exceptions, appears to have occurred in the Somme district, and the eighty cases came from sixty-five separate units.

Examination of the blood by Professor Walker Hall for agglutinins of typhoid, paratyphoid A, and paratyphoid B gave the following results:

Class I. Agglutinins for all three diseases were present in 46 cases = 57.5 per cent.
„ II. Agglutinins for typhoid only were present in 23 cases = 28.7 per cent.
„ III. Agglutinins for typhoid and paratyphoid A were present in 6 cases = 7.5 per cent.
„ IV. Agglutinins for typhoid and paratyphoid B were present in 4 cases = 5 per cent.
„ V. No agglutinins for these diseases in one case = 1.2 per cent.

Of the 23 men in Class II, 9 were inoculated in 1914 or 1915; the remaining 14 were inoculated in 1916, and of these 8 quite definitely with T.A.B.; of the 6 men in Class III, all had quite definitely been inoculated with T.A.B. in 1916.

Of the 4 men in Class IV, 3 had been inoculated with T., and only one with T.A.B.

The man with no agglutinins in his blood stated that he had not been inoculated.

These facts show that agglutinins for paratyphoid A and B disappear from the blood much more quickly than do those for typhoid, and in some cases within a year.

Three of the four men in Class IV, who were inoculated with T. only, must have become infected with paratyphoid B during their service. This conclusion would throw doubt on a supposition that in the case of the six men in Class III agglutinins for paratyphoid B had disappeared from the blood, whilst those for paratyphoid A persisted. It is equally probable that in the case of these men agglutinins for both A and B disappeared from the blood and that they had subsequently suffered from an infection with paratyphoid A.

It follows from the above that of eighty men who were invalided with dysentery, three had previously been infected with paratyphoid B, and possibly six with paratyphoid A. Questions were asked of these men, but all declared that they had had good health previous to suffering from dysentery.

Many men are transferred to England with a diagnosis of P.U.O. (pyrexia of unknown origin), and bring with them temperature charts showing a simple fever of from seven to ten days. Some of these show agglutinins for typhoid and paratyphoid A or paratyphoid B in the blood, and have been inoculated previous to 1916. It is therefore probable that, as in the case of typhoid, paratyphoid A and B may be of all degrees of severity, varying from a malady which escapes attention, through cases of short fevers with no distinctive signs, to the easily recognized typical diseases.

Although no carriers of paratyphoid A or B have been detected among these cases of dysentery, or among those of P.U.O., this was always a possibility, and was guarded against by examination of faeces and blood.

Direct or indirect evidence of the cause of the dysentery was found in fourteen cases = 17 per cent. In three cases *Amoeba histolytica* was found—none of these had served abroad, except in France. In eleven cases the cause was bacillary—in three *B. dysenteriae* (Flexner) was found at the 2nd Southern General Hospital, although the blood showed no agglutinins for this organism; in four cases *B. dysenteriae* (Flexner) was stated to have been present in France, and in one of these the blood showed agglutinins for this organism at the 2nd Southern General Hospital; in one case *B. dysenteriae* (Flexner and Shiga), in another *B. dysenteriae* (Y), and in another agglutinins for *B. dysenteriae* (Y) were found in France.

These results show that agglutinins are not necessarily present in the blood in cases of infection by these dysentery-causing organisms, so that their absence does not negative a bacillary cause. Further, they suggest that antidysenteric serum might be used with good effects in the majority of these cases in the early stages.

The occurrence of these cases—both amoebic and bacillary—in France is probably to be explained in the transference there from the East of men who were undetected carriers. Thus six out of the eighty men had served at the Dardanelles, and of these four had been invalided thence with dysentery.

These convalescent cases after arrival in England showed but little trace of their previous illness. Most had

lost a stone or so in weight and were weak. Very few had any diarrhoea, and in those in which it did occur bismuth carbonate in teaspoonful doses was most useful. In this there was a marked contrast to the cases of amoebic dysentery in 1915, where a chronic or relapsing diarrhoea was a common feature. I found lactic acid fermented milk acted very well in these cases of post-dysenteric diarrhoea without any specific pathogenic organisms in the stools. *Amoeba histolytica* disappeared from the stools of the three cases of amoebic dysentery after ten days' administration of bismuth and emetine iodide. Each dose was preceded, half an hour before, by ten drops of chlorodyne. This was found to prevent nausea and vomiting.

Most men complained of constant pain in the back and bones of the legs, in some for a time so severe as to prevent sleep. This pain was unaccompanied by abnormal physical signs. There were no cases of arthritis in these cases from France.

Quite half the men had some tachycardia, with a rate of from 80 to 110. It gradually subsided with rest in bed. Digitalis slowed the rate to normal in many of these in a most marked way.

One man had incontinence of urine, with *Streptococcus faecalis* and *B. coli* in the urine. This cleared up on administration of hexamine.

The above evidence suggests the following conclusions There are a large number of men serving in France—possibly a third of the number—who are unprotected against paratyphoid A and B, either by inoculation having taken place previous to 1916 or owing to disappearance of agglutinins for these diseases. These men are liable to become infected. It is advisable that inoculation or reinoculation with A and B be done once a year.

The importance of a pure water supply, where this is possible is emphasized by the occurrence of dysentery, both amoebic and bacillary, in France. Such cases are likely to increase in numbers during the coming summer.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF PUERPERAL SEPSIS BY THE CARREL-DAKIN METHOD.

DURING my period of service in France I was much impressed by the success attained in the treatment of large septic wounds by the Carrel-Dakin method, and it occurred to me that a similar kind of treatment would probably be useful in many cases of puerperal sepsis. A tube or tubes of suitable length could be introduced into the uterine cavity, and once they were in position it would only be necessary for the nurse to undo the clips, and inject an appropriate quantity of Dakin's solution every hour or two hours. The only disturbance of the patient would be that required for the introduction of the tubes. The subsequent treatment could then proceed with the minimum of discomfort to the patient and without any manipulation of the uterus.

I am convinced that in this method we have the possibility of a great advance in the treatment of a condition which has hitherto baffled medical and surgical resources.

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TREATMENT OF INFANTILE CEREBRAL DIPLEGIA.

THE fundamental fact of the symptomatology of this disease is the spasticity of the muscle. From this condition it follows that any attempt of the person to perform an act results in excessive muscular contraction. Normally the act of attention is followed by mild contractions of the muscles of the face; in this disease it is followed by excessive contractions that produce the familiar staring mask-like appearance. In walking, moving the arms, or in speaking every muscle is thrown into violent contraction. To control these excessive contractions and keep them from being utterly irregular certain muscles must be trained to counteract each of the overacting ones—that is, the co-ordinating centres of the nervous system (taxic centres) are to be trained to counteract the irregular effects of spasticity. If by "hypertonia" we indicate the spasticity itself, then "anatonia" may be used to designate the efforts of the nervous system to control the spasticity. Up to the present time all the methods designed to teach these people to walk and control their arms have consisted in exercises in which they are taught to try hard to control the jerkiness of the movements.

This disease may be conveniently studied in its effects on speech. Inscriptions of speech made by a recording apparatus show that all the sounds are over-enunciated, that the tone from the larynx is almost absolutely monotonous, that the breath is held under great pressure, etc. The work on speech has suggested a method of treatment that has proved highly successful. In this disease any effort of will of normal strength is followed by muscular contractions of abnormal force; therefore it follows that milder muscular contractions may be obtained by weaker acts of will. The patient should be trained to speak and act gently, as if he did not care to make any effort at all. The result is a weaker muscular action. In a very short time he learns to restrain his impulses, as if he meant to speak in a "don't care" manner. The result becomes normal speech. The same method is extended to walking and the use of the arms. "Try not to try" is the instruction. In every act the patient carefully refrains from any mental effort, and the spastic muscles are aroused only by weak impulses. Special co-ordinating exercises are unnecessary; are, in fact, injurious. The patient learns to walk and speak by special training in graceful, easy, and relaxed movements under skilful care. The results by this method are quick and permanent.

London, W. E. W. SCRIPTURE, M.D.

SCIRRHOUS CANCER OF THE OVARY AT THE AGE OF 15.

ON January 2nd, 1917, in consultation with Dr. Percy Elliott, of Walthamstow, I saw a young lady with a solid abdominal tumour. She was 15 years of age, was menstruating regularly and as usual. Six days before I saw her she had complained of rather severe pain in the lower abdomen and back, but more especially in the back, and pain with a more or less constant feeling of sickness, and occasional attacks of sickness, had been troublesome symptoms ever since. When Dr. Elliott saw her he detected an abdominal swelling in the hypogastrium, and to eliminate the question of a distended bladder he very advisedly passed a catheter. When I saw her the tumour, which extended from the pelvis to within an inch of the umbilicus, was pushing the anterior abdominal wall slightly forward. It was central in position, fairly regular in outline, and everywhere hard. Both flanks were resonant. On rectal examination a portion of the swelling was felt in the right pelvis.

The patient herself—being a mere child—was unable to throw any light upon the question as to how long the growth had probably existed as an abdominal swelling.

The growth, when removed by me four days after I first saw her, was a solid tumour of the left ovary. It was of the size of an average male adult head. The pedicle was extra thick and extra vascular. The right ovary appeared quite healthy, and was consequently not disturbed.

Dr. Trevor Davies, who examined the tumour microscopically, pronounced it scirrhus.

London, W. JAMES OLIVER, M.D., F.R.S.Edin.

CASE OF QUINTUPLETS.

MRS. C., aged 39, when I first saw her on January 4th, 1917, was complaining of shortness of breath, persistent vomiting, a lump rising and falling in her throat which was choking her, and pain of a dull gnawing character in her side.

History.—She was eight months pregnant, had suffered a good deal the whole time with vomiting, was very nervous, and slept badly. She had no piles, but complained of her feet being swollen more than usual. She had seven children, all living; no miscarriages. Her previous confinements had been all quite normal, of an average duration of five to six hours. No previous twins or triplets.

Family History.—She was one of a family of eight; one sister had had twins once, no other multiple pregnancies. Her husband was one of a family of six, no multiple pregnancies.

On examination the abdomen was very large, distended, and quite hard all over. I could detect nothing on palpation. Tachycardia was present, and a slight systolic murmur. She was unable to lie flat on her back due to the dyspnoea, and had to sleep in a semi-recumbent position, propped up with pillows. There was oedema of the legs and feet. She was treated with gastric sedatives and potassium bromide.

Labour began on February 1st about 8 or 9 p.m. I was summoned about 2 a.m. I found the os three parts dilated and a bag of waters presenting. I ruptured, and at 2.30 a.m. the first child was born—a male (presentation left occipito-anterior). After a pause of about five minutes the uterine contractions started again, and a second bag of waters was found presenting; on rupturing it a second cephalic presentation was found (left occipito-anterior) again. The second child was delivered at 2.40. This delivery was followed by quiescence for about twenty minutes; uterine contractions then started again, a third bag of waters was found presenting, and on rupture a podalic presentation was found. Delivery took place in about twenty minutes at 3.20 a.m. After an interval of only a few minutes uterine contractions again started, another bag of waters presented, and on rupturing it a left occipito-anterior presentation was found; the delivery took place in a few minutes, the birth occurring at 3.30 a.m. After another few minutes' interval uterine contractions again started, another bag of waters presented very high up in the pelvis; on rupturing, a cephalic lie was made out. Delivery took place very rapidly, the child being born at 3.48.

After an interval of about a quarter of an hour slight uterine contractions were again felt, when the placenta was expressed without any difficulty; it was found to be one large placental mass with five separate sacs.

The sex of the first four children was male; the last was a female; they were all alive at birth, and lived for varying periods from one and a half hours up to twenty-eight hours. The children were fully developed, about 8 to 12 in. in length. I unfortunately had no opportunity of weighing them.

The amount of liquor amnii was enormous, over three quarters of a bucketful.

The mother had quite a normal puerperium; there was no tendency to excessive haemorrhage.

Horden. W. MARTIN, L.S.A.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BRISTOL ROYAL INFIRMARY.

A CASE OF ALKAPTONURIA.

(By F. K. HAYMAN, M.B., B.S.)

THE patient, a girl about 8 years old, was admitted to the infirmary on account of tuberculous glands in the neck about January 25th. She was weakly looking, and the mother said that she had always been delicate, though she had had no serious illnesses except the usual childish ailments.

The urine when passed was clear, and normal in colour, of specific gravity 1012, slightly acid, reduced Fehling's solution, and immediately turned dark brown on adding caustic soda or strong nitric acid. It gave no reaction for blood or albumin, and no sugar was found by other tests. On keeping, the specimen turned dark brown in a few hours, and became progressively darker for two or three days. It did not in this time undergo any putrefactive changes, but remained almost odourless.

The child's mother states that she had noticed the change of colour in the urine, but she says that it is not constantly present. She has had it from birth, for about one or two weeks at a time, at intervals of about two or three months. She states that there is no trace of the condition in the other children, but that her mother and one of her sisters had it. There is no consanguinity in the parents, or, as far as I can find out, in the family at all. There is no sign of any discoloration of any of the ligamentous or cartilaginous structures in the body.

Reports of Societies.

DIAGNOSIS IN DYSPEPSIA.

AT a meeting of the Harveian Society, when DR. AMAND ROUTH was in the chair, DR. ROBERT HUTCHISON read a paper on diagnosis in dyspepsia, which he defined as a disturbance of digestion caused by organic disease or functional disorder of the stomach. Owing to the widespread nervous connexions of the stomach and its close relations to other organs in the abdomen, dyspepsia was apt to be simulated by disease elsewhere than in the stomach itself. Among such conditions in which vomiting was chiefly the deceptive symptom were pregnancy, uraemia, pulmonary tuberculosis, obstruction in the urinary passages (uro-kinetic dyspepsia) or colon, cerebral tumour, gastric crises of tabes, migraine, movable kidney, nervous or hysterical vomiting, and, possibly, vicarious menstruation. Gastric pain might be simulated by gall stones, angina pectoris, and angina abdominalis, mucous colitis, and chronic appendicitis. Extra-abdominal causes had also to be thought of—for example, pleurisy, spinal caries, myalgia, and herniae. Finally, air swallowing (eructatio nervosa) was often mistaken for the flatulence of dyspepsia.

Having eliminated the possibility of simulation it had next to be determined whether the symptoms were due to organic disease in the stomach or to perversion of its functions. If the patient complained of severe pain, or if there were much wasting, or if vomiting were a prominent symptom, the presumption was in favour of organic disease and of the necessity for surgical treatment.

The organic diseases which had to be differentiated were (1) ulcer, characterized especially by pain coming on at a definite interval after food; (2) carcinoma, in which pain was more constant, and wasting and loss of appetite prominent features; (3) stenosis of the pylorus and hour-glass stomach, in both of which vomiting was pronounced; and (4) gastritis. The differential diagnosis of these by symptoms, physical signs, and the use of special methods such as test meals and x rays, was considered; and Dr. Hutchison then pointed out that midway between the organic diseases and functional disorders of the stomach were two conditions which partook to some extent of the character of both: (1) The painful dyspepsia of young women, variously known as gastralgia, acute ulcer, gastric erosions, haemorrhagic gastralgia, and gastrotaxis; and (2) gastroptosis. The diagnostic features of these were described, and it was pointed out that they were not cases for surgical treatment. If cases of simulation and of organic disease were eliminated it might be concluded that the case was one of functional dyspepsia. Further differentiation depended upon classification.

Various classifications of functional dyspepsia had been suggested. On an etiological basis the cases might be divided according to their supposed cause—for example: (1) Those due to physical causes, such as fatigue, unsuitable diet, defective chewing, and so on; (2) mental causes, such as overwork; and (3) moral causes, such as worry and depressing emotions. This classification, though unsatisfactory, was of some use in radical treatment; or a purely symptomatic division might be adopted into "flatulent," "acid," and other types. Such a basis, though often used, was apt to lead to unsatisfactory and rule-of-thumb therapeutics. The most scientific plan was to divide cases according to the nature of the disorder of function present. The physiological functions of the stomach were three—(1) secretory, (2) motor, (3) sensory, and any of these might theoretically be disordered in the direction either of excess or defect. Secretory disorders were hyperchlorhydria and achylia, motor disorders atony and hypertony, and sensory affections (theoretical) hyperaesthesia and anaesthesia. These disorders might also occur in various combinations with one another or along with organic disease. The differential diagnosis of these functional affections was then considered in detail.

Reviews.

MEDICAL DISEASES OF THE WAR.

A BRIEF but very practical and up-to-date account of the *Medical Diseases of the War*[1] has recently been written by Temporary Major A. F. HURST, M.D., R.A.M.C. Major Hurst has had the opportunity of studying these diseases successively in London, Lemnos, and Salonica. His first chapter deals with the functional nervous disorders that have been so common among the combatants. Then follows an account of the various forms of dysentery that have been met with—the amoebic, the bacillary, the flagellate, and the ciliate—with a note on the treatment of diarrhoea during epidemics of dysentery. Not a few cases of chronic or recurrent dysentery have occurred in officers and men convalescing or stationed in this country after a primary infection contracted abroad, whether of the amoebic or the bacillary variety. Major Hurst gives a very full account of the diagnosis and treatment of these varieties of dysentery which should be of great practical service to medical men called up to treat such cases. It is considered that in amoebic dysentery emetine is the drug indicated; while bacillary dysentery calls for the exhibition of antidysenteric serum, with sodium sulphate as an aperient and tannic acid (4 gr. to the ounce) as an astringent enema. In any case of dysentery, it is needless to add, the diet must be bland for at least two months after the symptoms have disappeared.

Other chapters are given to amoebic inflammations of the liver, trench fevers, paratyphoid fever, epidemic jaundice (few of the cases being instances of spirochaetal (Weil's) disease), beri-beri, soldier's heart, war nephritis, and gas poisoning. Major Hurst has had access to much of the recent literature of these subjects in several languages, and his pages are full of facts and sound practical comments.

The book is most interesting reading, and may be warmly recommended to the attention of all medical practitioners and students who are directly concerned with the subjects with which it deals. We look forward with interest to future editions of the work.

PHARMACOLOGY AND THERAPEUTICS.

THE second edition of Professor H. C. WOOD's textbook of *Pharmacology and Therapeutics*,[2] a book for American students and practitioners of medicine, gives a plain and pedestrian account of the subject well suited to the requirements of those for whom it has been written. Professor Wood classifies drugs into six main departments, according as they affect secretion, the nervous system, the circulation, the alimentary tract, metabolic processes, or the causes of disease; his last two chapters are devoted to miscellaneous drugs that have not found a place elsewhere, according as they are either extraneous remedies or drugs of minor importance. Such a classification as this illustrates admirably the impossibility of discussing drugs in any rational or scientific order, an impossibility that seems to have been realized by all writers of pharmacological and therapeutic textbooks, and due to the variety of the actions displayed by so many drugs when administered either in different doses or to different individuals. Without going at all deeply into the chemistry or physiological action of the drugs with which he deals, Dr. Wood gives a simple and straightforward summary of the subject, such as will appeal to practical people. It may be added that many of the misprints that appeared in the first edition of his book persist uncorrected in the second.

In his massive work on *Diagnostic and Therapeutic Technic*[3] Dr. MORROW has endeavoured to bring together and arrange in a manner easily accessible for reference a large number of the manipulative and instrumental procedures employed in diagnosis and treatment. The volume accordingly contains a great deal of useful information on subjects dealt with, as a rule, only in special volumes written by a number of specialists in each of the domains of medicine and surgery covered by Dr. Morrow. His twenty-two chapters deal with the technique of such different subjects as anaesthetization, transfusion, the injection of drugs, exploratory punctures, aspiration, diseases of the organs of special sense, and the mechanical procedures required in the diagnosis and treatment of diseases of the alimentary tract and the urino-genital apparatus. Numerous line drawings, for the most part somewhat diagrammatic, have been introduced to make the text plainer, and these may be said to perform their functions excellently. The second edition has been enlarged and brought up to date. It should be of considerable service to students of medicine who wish to learn how to do things for themselves, and to the many medical practitioners who have no specialists at hand to whom the cases requiring these rather special lines of treatment may be referred.

Professor H. A. HARE'S *Textbook of Practical Therapeutics*[4] is a general account of treatment and regimen that has run to sixteen editions in the last six-and-twenty years. This fact alone may be taken as a guarantee of the character possessed by the book in America, the land of its birth. It is divided into four parts: The first of these is devoted to general therapeutical considerations. The second, occupying more than half the text, contains details of all the drugs that the practitioner is likely to use, arranged in alphabetical order; in the case of the more important drugs special paragraphs are given to the physiological action, therapeutics, and administration, and the symptoms and treatment of cases of drug poisoning receive adequate treatment also. The third part describes remedial measures other than drugs, and the feeding of the sick. Part four, occupying nearly 300 pages, contains an alphabetical list of the chief diseases and their treatment. The book contains a number of illustrations, and may be said to cover a large amount of ground in a satisfactory manner. It may be recommended to the attention of general practitioners of medicine in search of a textbook of treatment that is sound, but not unduly scientific or profound.

Dr. GOLDSBROUGH'S *First Principles in Therapeutics*[5] contains an amplification of four lectures delivered at the London Homoeopathic Hospital. In the first it is argued that treatment should depend upon the prognosis, and not upon the diagnosis of the disease from which the patient is suffering. The second lecture contains an account of the subordinate order of principles upon which homoeopathic treatment should be based, such as hygienic principles, reflective attitudes, empiricism, and the like. The third contains a schedule for case taking; the fourth describes how to prosecute the search for choice of a suitable medicine. Dr. Goldsbrough writes with a fluent pen, and treats his readers to a good deal of philosophy and abstract ratiocination, idealism, and psychology. To what extent therapeutics are advanced thereby is a matter that the reader must determine for himself.

BIO-MORALITY.

THE author of *Evolution by Co-operation*, a work reviewed in these columns in the issue of March 25th, 1914, has returned to the charge in a volume entitled *Symbiogenesis*,[6] the object of which is to reinforce his conception of evolution as an uplifting process with a strong bio-moral sanction behind it. In his view, permanence and survival in the organic world are determined by useful work, the production of social values by the successful organism, which in its relations to other organisms combines the functions of

[1] *Medical Diseases of the War.* By A. F. Hurst, M.A., M.D.Oxon., F.R.C.P., temp. Major, R.A.M.C. London: E. Arnold. 1917. (Demy 8vo, pp. 151; 9 charts. 6s. net.)

[2] *Pharmacology and Therapeutics, for Students and Practitioners of Medicine.* By H. C. Wood, Jr., M.D. Second edition. Philadelphia and London: J. B. Lippincott Co. 1916. (Med. 8vo, pp. 462; 28 figures. 18s. net.)

[3] *Diagnostic and Therapeutic Technic.* By A. S. Morrow, A.B., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 852; 860 figures. 21s. net.)

[4] *A Textbook of Practical Therapeutics; with Special Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis.* By H. A. Hare, M.D., B.Sc. Sixteenth edition, thoroughly revised and largely rewritten. London: H. Kimpton. 1917. (Med. 8vo, pp. 1009; 7 plates, 149 figures. 25s. net.)

[5] *First Principles in Therapeutics.* By G. F. Goldsbrough, M.D. London: John Bale, Sons, and Danielsson, Ltd. 1916. (Demy 8vo, pp. 138. 7s. 6d. net.)

[6] *Symbiogenesis: The Universal Law of Progressive Evolution.* By H. Reinheimer. London: Knapp, Drewett and Sons, Ltd. 1915. (Demy 8vo, pp. 448. 10s. 6d. net.)

an industrious artisan and a thriving trader. Favourable variations are such as promote mutuality between species, and are the natural reward of that type of nutrition which the author denominates "cross-feeding." Predaceous or "in-feeding" species are on the downward path, which leads through obligate parasitism to degeneration and extinction. These conclusions are the same as the author has advocated in former works, but the present volume is more ambitious in scope and more abstract in method. It is in our opinion a justifiable demand that some positive standard of biological value shall replace the Darwinian criterion of fitness—mere "survival." But the author's glorification of the strenuous life and of economic utility hardly strikes us as finally adequate. The events of the last few decades have demonstrated with tragic force the possibility of employing industry and trade as means towards aggression and spoliation. If the attempt to set up commercial utility as the criterion of biological status were to succeed, the best that could be said for it would be that it was an improvement upon undefined "adaptability," or, on the Spencerian alternative "complexity." That there is a moral factor in evolution is an attractive and, we are disposed to agree, a sound proposition; we are by no means convinced that it is of so simple and obvious a nature as the author of *Symbiogenesis* would persuade us. In the human sphere it is not always the highest types which are the most blameless or innocuous, nor does it appear to be so in the organic. It is, however, astonishing that the survival value of innocuous habits *plus* utility to other species almost completely escaped the notice of the nineteenth century evolutionists, and the author of the present work, in common with Kropotkin and others, has done good service in insisting upon this neglected factor of the problem. His book displays literary ability and considerable ingenuity in the utilization of recent discoveries and hypotheses in various departments of biological and pathological research. There is, however, a tendency to prolixity and irrelevance, which makes the reader's task somewhat arduous; and some of the arguments are very far-fetched. Moreover, it seems hardly fair to assume a knowledge of Latin, French, German, and Italian, as is done by the interpolation of innumerable untranslated quotations. A word of praise is due to the invariable urbanity permeating a book which is nothing if not controversial.

A BOOK OF SORROW.

There is a luxury in grief, and it may be right to "give sorrow words," because "the grief that does not speak whispers the o'er-fraught heart, and bids it break," but at first sight of *The Book of Sorrow*,[7] by Andrew Macphail, the question arises whether grief may not be too voluble. The use of the book for a little shows that the suspicion was unworthy, and that there is nothing within it which is not the true expression of the mood or emotion of the writer. Many and varied are the moods of the several writers, and it needed no assurance in the preface to make it certain that these pieces were assembled and placed in order during many years of peace, and are published for the comfort of many in these terrible years—such comfort, at any rate, as may come from the knowledge that others have had the same bitter experience. While the sorrow is new the personal sense of physical loss is uppermost:—

> When some beloved voice that was to you
> Both sound and sweetness, faileth suddenly,
> And silence, against which you dare not cry,
> Aches round you like a strong disease and new—
> What hope? What help?

Thus Mrs. Browning; and for the next or a later phase, when the mind begins half consciously to seek comfort in illusion, may we not quote Andrew Macphail himself?

> Beloved, Spring is come! Do you not hear
> The strong South wind's deep breathing in the trees? . . .
> Nor yet the bird notes rising high and clear
> Above the merry whistling of the breeze?
> Will you not answer, if I join with these
> My cry of longing and of love most dear?

And so presently Captain Andrew Macphail from C.A.M.C. billets in Flanders leads us by devious ways to "Resignation," the section to which he boldly prefixes Milton's "Nothing is here for tears, nothing to wail." A hard saying.

A book is this to buy and keep by one, and to buy again and give away, if only to make the sorrower of to-day realize how many have walked the same road in these last three centuries.

[7] *The Book of Sorrow.* By A. Macphail. Oxford University Press: H. Milford. 1916. (Cr. 8vo, pp. 512. 6s. net.)

NOTES ON BOOKS.

We have recently received a copy of the second edition of the American translation of Nonne's book on syphilis of the nervous system, translated from the third German edition dated 1915. The nineteen chapters of the work cover the ground well and are written with care and knowledge. Following a general account of the etiology and pathology of the subject come chapters on cerebral and basal syphilitic meningitis, after which are discussed syphilitic neuroses and psychoses, paralytic dementia, syphilis of the spinal cord and membranes, syphilis of the nerves, and hereditary syphilis. In his chapter on the so-called Wassermann reaction Dr. Nonne disingenuously avoids mention of the work of the Belgians Bordet and Gengou, who were the first to discover, study, and establish the essential principle of the test. It will be remembered that Dr. Stephens has recently proposed to rename this reaction "the compluetic reaction," in view of the fact that it depends upon the occurrence of complement-fixation in luetic disease. Dr. Nonne's last two chapters deal with the prophylaxis and salvarsan treatment of syphilis. There is nothing in the book to show that the treatment of syphilitic German soldiers during the war has been anything of a problem to the medical authorities of the German army, possibly because the author had no information on the subject when he was preparing this edition for publication. The translator has produced a readable version of the original, although the purist will not unreasonably object to such words as "gummi" for the plural of gumma (page 21), "excesses in Bacco"—a phrase which might leave the open-minded reader in doubt as to whether excess in smoking or in drinking were being impugned (page 12); on page 361 the names "Vidal" and "Ravant" should be "Widal" and "Ravaut," and "xantochromia" on page 364 should be "xanthochromia."

Dr. Maude Glasgow's *Life and Law*[9] is a fairly complete but popularly written account of the physiology of sex, intended, we presume, for the instruction of parents and teachers, as it could hardly be considered suitable reading for young people. The later chapters deal with venereal diseases and the problems arising out of prostitution, and the authoress takes a strong stand against what she calls "reglementation," on the grounds that it "implies the upholding of the double standard of morality and gives the industry a certain standing in the community." The book is ably written and embodies a great deal of useful information.

Professor Boyd's little book, *With a Field Ambulance at Ypres*,[10] is a diary taking the form of letters sent home to friends from time to time. Here the reader will find set out in well-chosen terms an impression of modern warfare as it strikes an orderly and reflective mind trained in the arts of peace. These pages, we read in the preface, were in most cases written within twenty-four hours of the events described, and so contain a record of simple facts and the thoughts to which these facts gave rise. Indirectly, yet with great clearness, the author reveals the waste and the savagery of war, contrasting it with the many natural beauties of the scenery round Ypres as the two principles—life and destruction—continually present themselves to his eye and recall the apt quotation to his mind. The illustrations have been chosen to exhibit the desolation of war, and are well reproduced. The only fault we have to find with the book, in fact, is that it is too short.

[8] *Syphilis and the Nervous System; for Practitioners, Neurologists, and Syphilologists.* By Dr. Max Nonne. Authorized translation from the second revised and enlarged German edition by C. R. Ball, B.A., M.D.; second American edition, revised. Philadelphia and London: J. B. Lippincott Company. 1916. (Med. 8vo, pp. 474; 98 figures. 18s. net.)

[9] *Life and Law: The Development and Exercise of the Sex Function, Together with a Study of the Effect of certain Natural and Human Laws, and a Consideration of the Hygiene of Sex.* By Maude Glasgow, M.D. New York and London: G. P. Putnam's Sons. 1914. (Cr. 8vo, pp. 205. 5s. net.)

[10] *With a Field Ambulance at Ypres: Being Letters Written March 7th to August 15th, 1915.* By W. Boyd, Professor of Pathology, University of Manitoba. Toronto: The Musson Book Co., Ltd. 1917. (Cr. 8vo, pp. 110; illustrated. 1 dollar.)

MEDICINAL AND DIETETIC PREPARATIONS.

Vaccines and Tuberculins.

MESSRS. DUNCAN, FLOCKHART AND CO., Edinburgh (Holyrood Road) and London (155, Farringdon Road), are prepared to supply vaccines and tuberculins made by the scientific staff of the laboratory of the Royal College of Physicians of Edinburgh under the direction of Professor Ritchie. The work has been undertaken by this research laboratory from a sense of patriotic duty, and if one of the results of the failure of German supplies is to bring it about that preparations of such highly specialized products shall in the future be in the hands of responsible medical bodies and not prepared commercially or privately, any temporary inconvenience that may have been suffered will have its compensating advantages. Messrs. Duncan, Flockhart and Co. issue a small pamphlet containing some very judicious observations on the general subject of vaccines, distinguishing prophylactic and therapeutic. Among the former is a triple antityphoid vaccine against typhoid and paratyphoid A and B, also a typhoid, paratyphoid, cholera vaccine. There is a considerable list of therapeutic vaccines, and it is stated that the preparation of autogenous vaccines is undertaken by the scientific staff of the laboratory of the Royal College of Physicians. The tuberculins prepared in the same laboratory include the types usually employed. The conditions under which these vaccines and tuberculins are supplied to the profession seem to us to be as good as could be devised, and combine the guarantee of one of the leading scientific laboratories in Great Britain with the facilities for distribution possessed by a well-known and respected firm.

MEDICAL AND SURGICAL APPLIANCES.

An Abdominal Protector.

DR. JOHN CAMPBELL, surgeon to the Samaritan Hospital for Women, Belfast, writes to draw attention to an abdominal protector designed by Lady Adair of Longhanmore, Dunadry, co. Antrim. It is made of flannel, and intended to give protection from chill to the abdominal and lumbar parts of the body. It is 36 in. long and 12 in. wide at the waist, but narrower where it passes between the thighs. The manner of adjusting the protector is by means of a waist-band of tape at the top with running ends, one of which is passed through two loops on the flannel band, and finally tied to the other running end. This admits of the band being unfastened when necessary without falling off the body.

COCAINE AND UNREGISTERED DENTISTS.

THE regulations made last July forbidding the sale of cocaine except to authorized persons, or its possession by other than authorized persons, were made in consequence of representations made by the Commissioner of Police at the prompting of the General Officer Commanding the London District as to the prevalence of the use of cocaine by soldiers in the London area. A preparation of cocaine was defined in the regulations as any admixture containing 0.1 per cent. (one part in 1,000) of the drug.

As a result of an outcry by unregistered dentists a temporary permit was issued under which unregistered practitioners were able to purchase cocaine preparations not exceeding 1 per cent. strength, and the period for which this permit was to apply has been extended, so that it is still in operation.

In November the then Home Secretary appointed a committee of five persons to consider the authorizations granted for the use of cocaine in dentistry, and to advise whether or not they should be continued or modified, and if continued, in what cases and with what conditions. The Committee has now reported. The Majority Report is signed by the chairman (Sir Charles Hobhouse), Mr. Stanley Baldwin, M.P., Mr. James O'Grady, M.P., and Judge Ruegg, K.C. It proposes that "persons practising *bona fide* as unregistered dental practitioners and who can so satisfy their local authority should be entitled to apply for registration for right to purchase preparations of cocaine containing not more than 1 per cent., such authorization to be granted by the county or borough council of the locality in which their business is situated, any refusal to register such persons being subject to an appeal to the Home Secretary." It recommends that such preparations of cocaine should be procurable only from registered chemists or persons, or firms, licensed for the purpose by the Home Secretary, and should be so purchasable without reference to the local authority by any registered dentist or by a member of a dental association the conditions of membership of which have been approved by the Home Secretary.

The majority of the Committee are moved to make these recommendations, apparently, for two reasons—first of all, that to prohibit unregistered dental practitioners from using cocaine would be inconvenient to them, since they have not the requisite skill in the use of novocain; and, secondly, that the majority of the Committee do not agree with the Commissioner of Police and the General Officer Commanding the London District that there is evidence "to show that there is any serious or, perhaps, even noticeable prevalence of the cocaine habit amongst the civilian or military population of Great Britain."

It is not surprising that Professor Bayliss, the fifth member of the Committee, finds himself unable to sign a report so full of contradictions and irrelevances. The majority gravely state that they do not consider novocain "quite so effective an anaesthetic for pulp operations as cocaine," and therefore think the use of cocaine should not be prohibited. Professor Bayliss, whose opinion on such a point is of infinitely more value, states that he is convinced that the use of cocaine is not necessary for any dental operation, and that its place can be taken by novocain without inflicting any hardship on the dentist. Unregistered dentists seem to have laid great stress on the alleged necessity of adding adrenalin to the novocain solution, and it would appear that in some cases more was added than was necessary; but, as Professor Bayliss points out, it is impossible to exclude the probability that the injurious results were due rather to the septic state of the mouth, and that no local anaesthetic whatever ought to have been used. Professor Bayliss criticizes the arrangements under which members of societies of unregistered dentists recognized by the Home Secretary would be enabled to obtain cocaine. According to the Majority Report there are 13,000 persons engaged in the practice of dentistry, of whom only 5,000 are registered; as a matter of fact, the number at the end of 1915 was 5,453, but this inaccuracy is rather typical of the report, which goes on to state that 1,600 of the remainder are members of the Incorporated Dental Society, a body to which the Home Secretary is now advised to give official recognition. Professor Bayliss points out that it is not a difficult matter to become a member of this society, and that it would be a mistake to give official recognition to unregistered dentists when the scarcity of qualified practitioners would be more effectively met by raising the status of the dental profession as a whole. There remain, as alleged by the Majority Report, 6,500 other practitioners of dentistry unregistered and non-members of the Incorporated Dental Society, and for these the special machinery mentioned is proposed. Professor Bayliss expresses the opinion that the complicated machinery devised—namely, the grant by local authorities of special permits to unregistered dentists not members of the Dental Society—must result in a mode of procedure likely to leave undesirable loopholes. While recognizing that the recommendations would place some difficulties in the way of obtaining cocaine, Professor Bayliss advises that they are unnecessary, and would cause waste of time and expense. His conclusion from the evidence and facts is that since the sale of cocaine is attended with serious risks to the community, and is unnecessary in dentistry, there is no reason to interfere with the operation of the regulation, and that therefore the permit issued to unregistered dentists to obtain preparations of cocaine should not be continued.

The manner in which the whole question has been handled does not reflect much credit on the business methods of the Home Office; it seems to have had a good inspiration at the beginning, and to have regretted it ever since. We believe that no one who has any real knowledge of the matter entertains any doubt as to the exceeding danger of the cocaine habit; it is easily acquired, it is destructive of mind and character, and it is even more difficult to get rid of than the morphine habit. It would seem to be well worth while, therefore, even at the cost of some inconvenience to unregistered dentists who have not learnt how to use novocain, to repress the sale of cocaine sternly. Certainly the report of the majority of the Home Office Committee affords no adequate reason for further relaxation of the regulations.

British Medical Journal.

SATURDAY, MARCH 17TH, 1917.

HERBERT SPENCER.

VERY great men looked up to Herbert Spencer during his lifetime: very little men have depreciated him since he died. Mr. Hugh Elliot has produced a monograph[1] that neither unduly exalts nor unduly depreciates the man who was perhaps the greatest figure in the Victorian age, and his book will be for a very long time the classical and standard estimation of Herbert Spencer. Like most of those who worshipped Spencer during his lifetime as an almost supernatural intelligence, Mr. Elliot has now lowered him to the rank of mortal man; but unlike very many whose appreciation of Spencer has undergone a similar change, Mr. Elliot has not swung violently to the opposite extreme of undue depreciation, or if he did so, has now recovered his balance, and sets before us a remarkably just, impartial, and discerning estimate of the great philosopher. For Spencer was unquestionably a great philosopher. It is the fashion now to depreciate him, and every ass takes the satisfaction of a kick at the dead lion; but the very shoes with which their hoofs are shod were forged in Spencer's works. As Mr. Elliot well says, many of his principles have come to be taken as part of common knowledge, and from being highly original suggestions have degenerated into platitudes. They are become a very part of the intellectual air we breathe, and their origin is forgotten: to many of the younger generation it is unknown.

Everyone now takes evolution for granted, and the whole vast fabric of the natural sciences is founded on this theory. Nor is its reign confined to the natural sciences. Mind, both the mind of individuals and the collective mind of societies and of the race, is subject to the law. All social institutions, as well as society itself, are regarded, not only as progressing, but as progressing in obedience to fixed laws, which it is our study to discover. The whole universe, and every part and factor in it, are evolving or dissolving. All this we take for granted. It is the base from which we start. It underlies the whole of our speculations and biasses all our observations. And the hypothesis of evolution in a coherent and practicable form we owe entirely to Herbert Spencer. As has been said, we all take it for granted, and do not trouble about its origin, but if its origin were questioned, it would be attributed by ninety-nine men out of a hundred to Darwin. But Darwin not only did not devise the hypothesis of evolution: he never even subscribed to it. Darwin's mind was primarily inductive. No man was ever more fertile in hypotheses; but to him a hypothesis was of value only as a possible explanation of facts already observed, and was instantly tested by the application of facts to it, and discarded if the facts did not suit. Spencer's hypotheses were suggested by the slenderest hint of a fact, and were never used to explain that fact alone. They were always of wide embrace, and were intended as general explanations of multitudes of facts. They were not so much tested by facts as supported and corroborated by facts, and facts that conflicted with them were ignored and made no impression on his mind. What Darwin discovered and placed on an indefeasible basis is the origin of species. His discoveries and his speculations never transcended the bounds of biology. Spencer took all knowledge for his province, and applied the doctrine of evolution to facts of every order, from the formation of the universe as a whole to the formation of a nerve or a religion. Moreover, Spencer's theory of general evolution was published seven years before Darwin's *Origin of Species*, and thus Spencer's title to the origination of evolution as a practicable working hypothesis is quite beyond all doubt or question, though, of course, vague adumbrations of it have been frequent from the time of Lucretius.

A prophet is not without honour save in his own country, among his own kin, and in his own house. The Englishman mistrusts and detests a general principle, and still more mistrusts and detests a deductive argument; and Spencer's life was passed in formulating general principles and founding deductive arguments upon them. In consequence he was less valued in his own country than in any other. The intellectual classes in America idolized him, and when he was in pecuniary straits raised a considerable sum and invested it, unknown to him, in his name. When he died, the *Times* attacked him with an asperity that was almost virulent: in Italy the Chamber of Deputies adjourned in honour of his memory. In books of science, and even in books on philosophy, his name is rarely mentioned now, and his works are rarely cited; but this is not because they are forgotten, nor because they exert no influence. It is because the whole of science and philosophy is so penetrated with them that they are become commonplaces, and their origin is in a fair way to be forgotten—is, in fact, unknown to the younger generation who have been suckled and weaned upon them.

Mr. Elliot summarizes Spencer's writings, and summarizes them extremely well, interspersing his summaries with very acute criticisms. It is no disparagement of his summaries to say that they have the defect of all summaries; that is to say, that they will be more useful as reminders to those who are already familiar with Spencer's works than as instruction to those who are not. Whatever may be the case with potted meats and potted plays, potted philosophy is scarcely nutritious. Mr. Elliot's account is, however, valuable to students of Spencer, since it gives a more general and comprehensive view of his doctrines than is easily attainable from a study of his works, in which even a thorough knowledge of each part is consistent with a defective grasp of the whole.

The most interesting chapter in Mr. Elliot's book is undoubtedly that on Spencer's character. Truly Mr. Elliot extenuates nothing, but neither does he set down aught in malice. His estimate of Spencer's character is indeed penetrating, but it is not unfair. Spencer, like other men, had the defects of his qualities. He had an "immensely strong individual personality"; and as for many years he gained few adherents, and the doctrines that he held and preached with passionate devotion made little progress, he grew soured and egotistic; and his egotism was unchecked by the mollifying influence of social intercourse, for which his health unfitted him. He was so passionately devoted to his own doctrines that they absorbed nearly all his interest, and his only interests beyond them were in novel reading and music; and the novel reading was not so much an interest as a pastime, for

[1] *Herbert Spencer.* By Hugh Elliot. Makers of the Nineteenth Century. Edited by B. Williams. London: Constable and Co. 1917. (Med. 8vo, pp. 336; frontispiece. 6s. net.)

his health did not allow him to work more than three or four hours a day, and the rest of his time was spent in idleness. It is remarkable that the greatest philosopher and the greatest man of science of the last century, the two men who have between them revolutionized the very framework of our knowledge, were both of them restricted by ill health to working only three or four hours a day. How Spencer accumulated his encyclopaedic knowledge is a marvel, for he was a dilettante reader, read little but novels, and never read through any other kind of book. In an age when German philosophy was almost universally looked upon with awe—chiefly, it is true, on the principle *omne ignotum pro magnifico*—he was the only man of eminence who despised it, and publicly declared his contempt.

An honester man than Spencer never lived, nor a more independent. Though he prized his philosophy above everything on earth, and was several times on the point of closing his work for want of means, yet he repeatedly refused financial assistance. In speech he was honest to the verge of incivility, and sometimes beyond it. In the Savile Club there is a legend, which Mr. Elliot does not mention, that upon Spencer being beaten at billiards by a very good player, he addressed his antagonist thus: "To play billiards well implies an accurate estimate of angles and distances, and great power of co-ordinating movements; but to play billiards as well as you do implies a misspent youth."

Spencer's literary style is lucid, and he was vain of it, as he was of several other personal characteristics; but even that of his best days is scarcely worthy of the eulogium that Mr. Elliot bestows upon it. It is lucid, it is true, but it is monotonous, it is destitute of humour, and it is disfigured by a plethora of inversion. It is scarcely too much to say that Spencer never wrote a straightforward sentence if he could possibly introduce an inversion, and some of his inversions are hideous monstrosities. In other respects we find nothing to cavil at and much to admire in Mr. Elliot's analysis. It is to be hoped that this excellent monograph will inaugurate a new fluctuation in that rhythmical progress of opinion that, as Mr. Elliot reminds us, Spencer described. He has been too long and far too much depreciated; it is time that his extraordinary powers of generalization and deduction and his strength and uprightness of character should again receive an appreciation more proportioned to their worth. Unlike as they are in the main, Spencer closely resembled in some respects Dr. Johnson. Like Johnson, he carried independence and resentment of assistance almost to excess; like Johnson, he was a constitutionally idle man, and, in spite of his dislike of work, achieved a colossal amount of it; like Johnson, he was uncompromising in the expression of his opinions; and, like Johnson, he carried almost to finicking excess his adherence to truth. Being human, he had weaknesses, but even his failings leaned to Virtue's side; and it may most truly be said of him as Dr. Johnson said of a much lesser man, "Let not the faults of Herbert Spencer be remembered: he was a very great man."

INFANT MORTALITY IN THE SLUMS.

THE results of a very elaborate inquiry into the relation of infantile mortality to mortality in subsequent life were presented by Dr. John Brownlee, Director of Statistics, Medical Research Committee, to the Royal Statistical Society on February 20th. The report embodies a vast amount of skilful reasoning, founded on the study of statistics, but it is for the most part more interesting than conclusive. Infantile mortality is greatly affected by the incidence of epidemics, occurring with a certain periodicity over longer or shorter terms of years, and it would seem that each epidemic disease is to some extent governed by laws of its own, but these points do not appear to have been taken into consideration by statisticians in the past.

The saving of infant life has been somewhat overprominent in the programme of the would-be social worker of late years. Dr. Brownlee does not appear to have much faith in the usefulness of the "fashionable fad for ladies of position and others, who either have no children themselves or have had their children brought up by strangers in their houses, to start societies and raise funds from the public with a view to popularize and extend some specious form of quackery." He considers that their efforts are only too likely to increase the number of the unfit, and to delay the progress of the really essential remedy, recognized and recommended by medical officers of health all over the country, which is the wholesale abolition of slums and slum life in general. The saving of infant life, if that life has to be lived under conditions which are not compatible with health, is a doubtful advantage to the community. Practical evidence has shown that the longer a child remains in slum life the less chance has it of enjoying sound health as an adult. Removal of a slum child into the country at the age of 3 results in a better expectation of future health and longevity than if such removal is postponed until 7 years of age. Dr. Brownlee emphasizes the dictum that healthy human life is not possible under the conditions usually prevalent in slums. Hence the futility of half-measures by way of district visitation and attempts at the better education of mothers in the management of their children.

Such attempts undoubtedly lead to temporary improvement in death-rate statistics, but such amelioration is apt to lead local authorities into a position of complacent stagnation as regards their plain and obvious duty to put an end to the evil which all recognize. The paramount need for proper training of the youth of the country, physically and mentally, for the exercise of useful citizenship in the future is now very obvious to every one. The perpetuation of the race of slum children ought to be resisted by every means that local authority in large towns can exercise.

Slum areas cannot be cleared until accommodation for their inhabitants can be provided in country places within reasonable distance of the parents' work. The efforts of the child welfare societies, to which Dr. Brownlee attaches so little importance, might well be directed towards the provision of accommodation in healthy surroundings for the little ones whose health is beginning to be adversely affected by unhealthy environment. The Children's Country Holiday movement has done much in the way of temporary relief to the failing health of the slum child, but a far more radical movement is called for if such health is to be maintained. Country holidays may be extended indefinitely, and combined with education. By their means the boys and girls of the future might be converted into young men and women physically fitted to undertake life's work, with far greater prospect of success for themselves and usefulness to the community than is possible for them under present conditions.

Public funds devoted to the physical improvement of the coming generation may be counted as well spent.

THE CONFERENCE SUMMONED BY THE DIRECTOR-GENERAL OF NATIONAL SERVICE.

THE conference called by the Director-General of National Service to consider the organization of the medical profession with a view to meeting the needs of the military and civil population in existing circumstances was opened on March 14th. Sir Donald MacAlister, President of the General Medical Council, presided, and all the representatives summoned to the conference were present—namely, Dr. Norman Walker, Dr. J. C. McVail, and Dr. John Adams, representing the Scottish Medical Service Emergency Committee; Dr. T. Jenner Verrall, Mr. E. B. Turner, Dr. Buttar, and Dr. Richmond, representing the Central Medical War Committee; Sir Rickman Godlee and Dr. Frederick Taylor, representing the Committee of Reference. The secretaries of these committees—namely, Mr. T. H. Graham, of the Scottish Medical Service Emergency Committee; Dr. Cox and Mr. Bishop Harman, Secretaries of the Central Medical War Committee, and Mr. Hallett, of the Committee of Reference, were in attendance. The conference was also attended by Sir William Babtie, V.C., K.C.M.G., representing the War Office; by Sir Arthur Newsholme and Mr. Stutchbury, representing the Local Government Board in England, and by Sir Robert Morant and Mr. Smith Whitaker, representing the Insurance Commissioners. The conference did not conclude the important business brought before it, and met again on March 15th. Should the conference decide to advise the Director-General of National Service that compulsory powers must be obtained, there can, we think, be no doubt that legislation will be necessary. We believe that, from a preliminary consideration of the position, the Government departments particularly interested have come to the conclusion that such legislation will be required.

THE CONSCRIPTION OF DENTISTS.

THE British Dental Association is taking steps to obtain the information and statistics necessary for the organization of the dental profession for any national work that it may be called upon to do. It is, we believe, estimated that the number of registered dentists of military age is over 2,000 and that about 1,000 are already serving either in the Royal Army Medical Corps as dental surgeons to the navy or army, or as combatants. The total number of names on the *Dentists' Register* for 1916 was 5,453, and it is generally held that the number of dentists is insufficient to meet the needs of the civil population. A further depletion of their ranks must, therefore, be a serious matter, and from the fact that the Executive Committee of the British Dental Association is making representations to the Director-General of National Service with regard to the risks attending any further diminution in the number of dentists available for the civil population, we assume that Mr. Chamberlain's appeal has still further complicated matters. We hope that he will be able to give favourable consideration to the representations made to him, for the great value of the services of skilled dentists to the civil community is now very generally understood. These services are important for the prevention of disease in adults, and to safeguard the growth and development of children. With regard to the calling up of dentists under the Military Service Acts, no one can, we think, have any doubt that it is waste of power to employ members of a very skilled calling, needed for the preservation of the health of soldiers and civilians alike, as ordinary combatants. There are therefore two questions—first, whether any more qualified dentists should be called up, and secondly, whether any who have been or may be called up should be employed as ordinary combatants. We feel sure that the answer to the second question is in the negative. With regard to the first, the matter presents practical administrative difficulties. It has been suggested that a Central Dental Committee should be appointed to work in co-operation with the Central Medical War Committee; it could do so in respect of obtaining information and making representations to the army authorities, but the powers of the professional committees with respect to the hearing of appeals for exemption are limited by statute; they would have no power to determine appeals for exemption from military service except in the case of those dentists who hold also medical diplomas. It would, however, be possible for the Army Council to issue an instruction to local tribunals to give special attention to representations made to tribunals by dentists, to the effect that the calling up of the individual would be detrimental to the public welfare, and it would, we imagine, be competent for the British Dent. Association to advise any one of its members, and to assist him in the presentation of his case.

MILITARY PENSIONS.

THE statement made by the Minister of Pensions on March 6th as to the new scheme of pensions for soldiers and sailors, and the discussion which followed, left a good many matters in doubt, but it would appear that the main principle upon which pensions are to be awarded in this country is that the man should receive a minimum pension according to his rank and the degree of any physical impairment, and also allowances for his children. If this minimum pension be insufficient to enable him to live approximately according to his pre-war standard he may be given an alternative pension based on his pre-war earnings, and means are provided for bringing pressure to bear on him to undergo treatment and training when considered to be for his good. In cases of slight permanent injury gratuities in place of pensions are to be awarded, as also in the case of soldiers discharged for medical unfitness not due to military service. If a man declines to undergo treatment medically certified to be in his interest, the half of any pension for which he would otherwise be eligible may be withheld, but while pensions at temporary rates must be given until a man's disablement has reached its final condition, a permanent pension then awarded cannot be altered to his disadvantage. The characteristically British part about the scheme is the provision that the pension may be based on the man's pre-war earnings. The French system ignores any such consideration, and is based on a line of reasoning which may be summarized as follows: The first proposition is that all men taken into the army as soldiers are normal men, that all normal men have the same wage-earning capacity, and that they all have also the same right to change their method of wage earning as often as they please. This leads to the first conclusion, which is that the amount of any compensation for an injury received in the service of the State must be proportional to the amount by which such injury would diminish the wage-earning power of a normal individual whatever occupation that individual may choose to follow. It is held, therefore, that a man who was formerly a tailor and has lost a toe is entitled to compensation even though such loss does not interfere with his work, because before he was a soldier he could have taken up, if he chose, some job in which a perfect foot was a necessity. The next proposition is that the compensation must be proportional to the duration as well as the extent of the loss of working power. But, except in a very limited number of cases, no surgeon or committee of surgeons can tell to what extent a given injury will be permanent. Consequently, except in cases where a man has undergone an amputation or suffered some equally obvious and irremediable loss of working power, a pension is not at once awarded, but a prescribed course of inquiry is followed. The man is sent to an institution where his defect is treated; bent limbs, for instance, are straightened as far as possible, and stiff joints

made limber. When the authorities of the institution report that they can do no more, the amount of working disability represented by the remaining defect is carefully assessed and recorded and the man is given a corresponding allowance. At the end of two years his condition is compared with the original record, and the allowance is diminished or increased according as the defect has varied in either direction. Subsequently he is re-examined again every two years, and if at the fifth two-yearly examination the defect is considered still to represent a loss of working capacity, the allowance is converted into a permanent pension. The estimate of incapacity throughout is the wage-earning capacity of a normal man free to pursue any occupation he pleases, or simply to amuse himself if he has private means. The advantages claimed for the system are that it allows of the same amount of money being spread in the long run over a larger number of persons than can be done by any direct pension system. It allows, too, of assistance being given to men whose actual working capacity may not be diminished, but who, nevertheless, suffer pecuniarily through their injury. Take, for instance, a young fellow in an office who has had compound fracture of the leg. Formerly he always used to walk home from his job, now he finds that once or twice a week he has to take an omnibus because he cannot walk as fast as formerly. Or the same young man used to play tennis or row; he can do so no longer, and he has to get his exercise and amusements in some more expensive way. There is no doubt that it is impossible to foretell to what degree many, if not most, defects will be permanent. A man, for instance, who served in South Africa, was shot in the foot, and awarded a pension. At first he was very lame, but for years has been able to walk, run, and dance as well and as long as any man of his age.

INFLUENCE OF THE DRESSING ON THE ANAËROBIC FLORA OF WOUNDS.

THE War Office Committee on Tetanus, of which Surgeon-General Sir David Bruce, C.B., F.R.S., is chairman, has issued a memorandum to hospital pathologists, asking them to give their assistance in the investigation of the influence of antiseptic and other dressings on the anaërobic flora of wounds. The Committee desires to obtain general evidence as to the persistence of anaërobic bacteria in wounds, and of the effect of various methods of wound dressing on their persistence. It is believed that if a sufficient number of pathologists would make routine observations for a short time upon two or three wounds each much useful evidence would be forthcoming, and that its value would be increased if all the examinations were made according to the same routine. In every case the type of dressing in use would be noted, and the presence or absence of spore-forming organisms determined by making direct films of wound discharges and anaërobic meat broth cultivations. It is suggested that a sample of wound discharge should be taken at intervals of four days immediately after the dressings are removed for the purpose of wound toilet. Pus should be taken with a sterile swab or sterile pipette, and emulsified if necessary with 2 c.cm. of sterile broth. From the emulsion or pus a paraffin meat tube would be inoculated, and a film and stain made by the Gram and carbol-fuchsin method. The meat broth would be examined by means of Gram-carbol-fuchsin films and hanging drop preparations at the end of forty-eight hours, and subsequently at intervals of four days for three weeks. The points to be noted are the presence or absence of spore-forming organisms, the type of sporulation, and the changes in the meat medium. These points and the method of preparing the paraffin meat tube are set out in the memorandum, which, together with a form of report, can, we understand, be obtained from Surgeon-General Sir David Bruce, C.B., F.R.S., Royal Army Medical College, Grosvenor Road, S.W.

TETANUS RELAPSE AFTER A TRIVIAL OPERATION.

AN instructive case showing the risks which in certain circumstances may attend even trivial operations has recently been reported to the War Office Committee on Tetanus by Dr. Stanley Barnes of Birmingham. A man wounded in both arms and both legs by shell fire early last summer developed generalized tetanus. He was treated energetically with serum, and, after a very severe illness, recovered. When he was first able to get out of bed, during October, he was greatly emaciated and weighed only 4½ st. He was sent to a hospital in the suburbs to recuperate and for treatment of some of the wounds. They all healed, but towards the end of February one of the many subcutaneous fragments of shell in the right thigh was giving pain, and the medical officer under whose care he then was froze the skin, made an incision, and removed a bit of metal three-eighths of an inch long. Within twenty-four hours the patient was in the throes of a severe attack of local tetanus, which for a week kept the whole of the right lower extremity in tonic spasm. Relapse of this kind, particularly when the wounds have all been completely healed for four months, must be unusual, but the case provides a warning against doing even trivial operations which are apparently aseptic without giving a preliminary dose of antitetanus serum.

SMALLER JOURNALS.

THE public has become familiar during the last few days with smaller newspapers, and has had other evidence that the restriction on the imports of paper and paper-making material is being enforced. The Prime Minister stated on February 23rd that the quantity of paper and pulp imported in 1914 was 1,800,000 tons, and in 1916 1,200,000 tons, but that the quantity was to be reduced in 1917 to 640,000 tons; all the paper used in this country for periodical publications is either imported or made from imported materials, so that the restriction of imports means an exactly corresponding decrease in the amount of paper available. It is not a question of price, but of quantity available. Newspapers and other periodical publications have therefore no alternative but to reduce the amount of paper they use. Some papers have been able to effect part of the necessary reduction by stopping the supply of copies to newsagents "on sale or return." There is very little scope for any economy of this kind in the case of the BRITISH MEDICAL JOURNAL, though anything that can be done will be done. It appears that no relaxation of the general rule as to the restriction of the quantity of paper will be made in favour of scientific journals, though, as in the case of this JOURNAL, they may render important services to the army and the nation. The only means of meeting the situation, therefore, is by diminishing the number of pages printed weekly. A very considerable reduction had already been effected since the war began, but it has now become necessary to continue the process, and the number of pages in this issue has accordingly been diminished as compared with recent issues. It is fully anticipated that this policy will have to be carried much further in the immediate future, and that it must affect the advertisement columns so soon as the necessary adjustments can be made. We are therefore bound to appeal to those who may think of honouring us by offering contributions for publication to bear this fundamental fact in mind. The desire is to make the JOURNAL as fully representative of medical opinion as circumstances permit, but this end can only be attained if every one will write as succinctly as possible, for redundances and repetitions must result in the exclusion either of the writer's own or some other contribution. Occasion has also been taken to make a small alteration in the manner of publication of the

SUPPLEMENT. Before the war it was stitched separately and inserted loose in the centre of the JOURNAL. When the difficulties created by the war began to be felt—and they arose at a very early stage—it was stitched into the centre. This plan presented many inconveniences and disadvantages; it was, in particular, disadvantageous to the interest that might be taken in the SUPPLEMENT, owing, among other reasons, to the fact that its table of contents was not in a prominent position. To get over this difficulty and to give greater elasticity, in view of the reduced number of pages for the whole issue, the SUPPLEMENT will for the present be published at the end of the JOURNAL, where its table of contents will be more conspicuous.

Medical Notes in Parliament.

Criminal Law Amendment Bill.

CLAUSE II of the Criminal Law Amendment Bill was again under consideration at the sitting of the Grand Committee on March 8th. Mr. J. W. Wilson presided. The Home Secretary (Sir George Cave) was in charge of the bill.

The clause provides that any person who is suffering from venereal disease in a communicable form shall not have sexual intercourse with any other person, nor wilfully communicate such disease by any other means, nor solicit or invite any other person to have such intercourse.

A brief discussion took place on an amendment by Mr. Rawlinson to add the words, "But shall forthwith consult a duly qualified medical practitioner either at a hospital, or otherwise, and shall take reasonable precautions to prevent the communication of such disease to other people." Mr. Hayes Fisher (Secretary to the Local Government Board) urged that the amendment should not be pressed. The policy, he thought, should be one of inducement, not of punishment, and with that object the Local Government Board was setting up places all over the country where persons could be treated gratuitously and secretly. If failure to consult a duly qualified practitioner were made a criminal offence, it would stifle the action of the Board. Sir W. Collins also expressed himself in favour of the educative and not the punishment policy. Mr. Rawlinson's amendment was negatived without a division.

Mr. Joseph King next proposed an amendment of the first subsection (which sets forth the terms of conviction), his wish being to secure that cases under the measure should not be triable by a court of summary jurisdiction. His view was that they should go before an experienced judge and a jury. The amendment was negatived without a division, but incidentally Mr. Burns expressed the opinion that whatever the tribunal, there should be greater secrecy in dealing with these cases. He suggested that the precedent afforded by the Children's Act might be extended. The Home Secretary, after mentioning that the right which an accused person had of electing to be tried summarily would be lost if the amendment were adopted, remarked that every court to-day had the inherent right to clear the court. That right was properly very sparingly used, but when cases of an undesirable character were about to be heard, an intimation to persons, advising them to leave the court, was usually effective.

It was agreed, on the motion of Sir George Radford, to insert an amendment providing that no person should be convicted under this section upon the evidence of one witness unless such witness were corroborated in some material particular.

A lengthy discussion ensued on the remaining portion of the section, which sets forth that a person may make a good defence if that person proves that he or she had reasonable grounds to believe that he or she was free from venereal disease at the time the alleged offence was committed. Four members had on the paper an amendment to insert after the word "disease" the words, "in a communicable form," and this was moved by Sir J. D. Rees. The Lord Advocate (Mr. J. A. Clyde) advised that the amendment should not be adopted, on the ground that it would increase the difficulty of securing conviction, as a person might say that he (or she) knew he had the disease but did not know that it was in a communicable form. Sir W. Collins said that without the qualification the position was awkward, for the disease might be provable by blood tests to exist, and yet it might not be "in a communicable form." In the end the amendment was adopted.

Subsection 3, "Where any person is convicted of any of the offences mentioned in the schedule of the Act, the court may, if they think fit, for the purpose of ascertaining whether that person is suffering from venereal disease in a communicable form, order that person to submit to such medical examination and tests as may be reasonable for the purpose," was omitted on the motion of the Home Secretary.

The bill was again taken in Committee on March 14th, when Clause II was again under review.

Mr. Aneurin Williams made a fresh proposal for the detention of convicted persons known to be suffering from venereal disease. He moved that where a prisoner convicted of any offence under the schedule was certified by the medical officer of the prison to be suffering from the disease in a communicable form, he or she should be detained in hospital until cured. Sir Frederick Banbury suggested the amendment should read in its closing words "until the disease is no longer in a communicable form," and thus altered it was briskly discussed. The strongest speech against it was made by Mr. John Burns, who said he had peculiar qualification for speaking on this subject, as he had been President of the Local Government Board and had been in prison on more than one occasion. He knew that the Local Government Board had no power to detain persons. As for prison experience, he could well suppose the case of a man who had taken a little more liquor than was good for him, and having assaulted a policeman had got a month's hard labour; and then it was found he was suffering from disease. There was no other person for whom poor people had such an affection and loyalty as for the prison doctor, and it would be most regrettable if, in cases such as he had mentioned, that relation were broken. It was because the relation was human, medical, neighbourly that prisoners trusted the doctor. If the power proposed to be given to the doctor were imposed upon him, that confidence would slowly but surely diminish. Mr. Burns also objected to the amendment because it would be class legislation. A greater number of the cases of disease occurred amongst the middle and upper classes. It was the poor that mostly went to prison. Why should the poor be detained, while the well-dressed went free?

The amendment was rejected by 36 votes to 11.

Mr. Glyn-Jones afterwards moved the omission of Subsection 6—the definition section—which said: "The expression, 'venereal disease,' means syphilis, gonorrhoea, or soft chancre, or any disease of the genito-urinary organs which may reasonably be suspected to be venereal disease." His objection was to the vague concluding words, and other members had down amendments to omit them. The Home Secretary said these words came from the Royal Commission's report but he was willing to drop them. He did not agree the section should be omitted; the worst that could be said against it thus reduced was that the definition was unnecessary. In the end the section was retained, venereal disease being thus defined as "syphilis, gonorrhoea, and soft chancre."

Mr. Glyn-Jones had down another amendment, to provide that a prosecution for an offence under this section (as to sexual intercourse by a person suffering from venereal disease) should not be instituted in England or Ireland without the consent of the law officers of the Crown. He urged that some safeguard against malicious or blackmailing prosecutions was necessary. It was not enough that a magistrate should dismiss a case, saying that a person charged was innocent. The mischief was done when the person was charged and publicity was given to the charge. The amendment was opposed by the Home Secretary and his predecessor, Mr. Herbert Samuel. Commander Wedgwood agreed that the amendment might add to the difficulty of securing convictions, but urged that the immediate point was to avoid making law which would be used for blackmailing. Mr. Rawlinson supported the amendment, remarking on the danger that when divorce proceedings were pending criminal proceedings might be

instituted by one party to prejudice the other, as this section would apply to communication between married persons. Other members having spoken, the amendment was withdrawn, the Home Secretary undertaking to introduce a safeguarding amendment later in the bill, or on report.

A short debate ensued on the clause as amended. Mr. Joseph King having moved its rejection, several members urged that the proposal for medical examination having been abandoned its character was materially altered, and that the creation of this offence of communication might prejudice the work of free treatment now being undertaken by the Local Government Board, as it might make persons more reluctant to disclose that they had the disease. The Home Secretary, however, believed that the clause would prove valuable, and one member held that in making persons more careful it would tend to cause them to accept free treatment from the local authorities.

On a division the clause was retained by 27 votes to 11.

The Treatment of Venereal Disease.

In the House of Lords, on March 8th, Lord Rhondda, President of the Local Government Board, moved the second reading of the bill to prevent the treatment of venereal disease otherwise than by duly qualified medical practitioners. The text of the operative clause was printed last week (p. 342).

Lord Rhondda said that the proposals were largely, if not mainly, based upon the conclusions reached by the Royal Commission. He recalled the opinions expressed by the Commission that 10 per cent. of the population were affected, and that the continued existence of unqualified practitioners was one of the principal hindrances to the eradication of the disease. While not claiming that the bill was a watertight measure, as very possibly its provisions might be evaded by unscrupulous persons, Lord Rhondda thought it would mark a very considerable advance. Many resolutions approving of the steps the Local Government Board was taking had been received from medical societies and from local bodies. The intention was that the bill should be applied to areas in which provision had been made by the local authorities for the gratuitous treatment of the disease. County councils and borough councils had already submitted schemes for districts covering a population in England and Wales of 23½ millions out of a total population of 36 millions approximately, and schemes covering a population of 16 millions had been approved. Therefore in all that area the practical difficulties which the Commission had in mind had been removed. In nearly half the country already there was provision for free diagnosis and treatment by qualified persons. He hoped that the bill would be regarded as of a non-controversial character. No doubt it would press a little hardly on chemists and druggists, but he had every confidence that the pharmaceutical body as a whole would offer no opposition. It would no doubt interfere to some extent with the livelihood of herbalists; but after listening to a deputation very attentively he saw no reason whatever to change his view that the Government ought to stand firmly for the suppression of all unqualified practice. He had approached the question of compulsory notification with a perfectly open mind and had concluded that, without closing the door to some modified form of compulsory notification later on, the action now being taken by local authorities should be given a fair trial; it would be prejudiced if compulsory notification were instituted now. Medical opinion, too, was overwhelmingly against compulsory notification. In conclusion, Lord Rhondda said that if the present bill were passed through the House of Lords, the intention of the Government was that, after it reached the Commons, it should be referred to the same Committee which was now considering the Criminal Law Amendment Bill.

Lord Sydenham said that abundant evidence had been given before the Royal Commission to prove that the treatment of venereal disease by quacks and the resort to quack medicines had been disastrous. The result of quack treatment was that there was delay and the disease became generalized. Unqualified persons, from want of knowledge, would also sometimes diagnose an ailment as the disease where it did not exist, and an immense amount of mental suffering was thus caused. The Commission did not like at the time it reported to recommend legislation for the suppression of quacks, feeling that this ought to come when free and ample treatment was provided for all classes. The bill would be a considerable step in the direction in which they ought to move without delay.

The only other speaker was Lord Gainford—until recently Mr. J. A. Pease—who said that when he was President of the Board of Education his attention was called to the tragic suffering of many children through the wrongdoing of their parents. He believed that this bill would do something to prevent the sins of the fathers descending upon their children, and he gave it support. The bill was then read a second time. On Tuesday the bill was taken in Committee in the Lords. No alterations were made and the proceedings lasted only a few minutes.

Medical Students and Military Service.—On March 13th, Mr. Hancock asked Mr. Macpherson: (1) Whether having regard to the shortage of fully qualified physicians and surgeons after the war, and the consequent menace to the civil population, care will be taken that medical students will not be compelled to enlist in His Majesty's Forces until they finish their course of study or before reaching the age of 19; and (2) whether Army Council Order No. 863 has been withdrawn, and, if so, when; whether medical students under 19 years of age, undergoing training in colleges and hospitals, can be permitted to continue their studies in accordance with the Regulation laid down in the Army Council Order provided that they join an Officers' Training Corps or some other recognized army auxiliary; whether consideration will be given to the fact that parents have embarked upon an expensive course of training for their sons under the impression that Army Council Order No. 863 would be observed; and will instructions be issued to recruiting officers and tribunals that, representation being made by responsible heads of colleges and hospitals as to the bona fides of students, and that they are members of an Officers' Training Corps or similar body, calling-up notices should be suspended until the age of 19 years is attained, in view of the fact that the military training in Cadet and Officers' Training Corps are quite equal in value and strenuousness to that given to recruits in the army. Mr. Macpherson, in a written answer, stated that the instructions had been amended. No member of an Officers' Training Corps who produced a certificate from the officer commanding the contingent that he was recommended to join an officer cadet unit was called up until he was 18½ years. Medical students were not called up if they were within twenty-four months of their medical degree or licence, provided they were enrolled in an Officers' Training Corps; if they were not called within this period, they were not called to the colours if, being under 31, they are classified lower than B1.

Allowances for Families of Officers of Junior Rank.—In the Commons on March 13th Mr. Forster (Financial Secretary to the Treasury) said that Treasury authority had now been obtained for a scheme whereby officers in the army under the rank of major, or of equivalent rank in the navy, might, under certain conditions, obtain a maintenance allowance from public funds for their children. These allowances would be made by the Military Service Civil Liabilities Committee, and would be supplementary to the grants already being made in respect of rent, rates, insurance and interest on mortgage. The present allowance of £104 might be increased by any amount which could be given for maintenance allowance. Application for grants must be made on the prescribed forms which would be obtainable from the army and navy agents, and from the Civil Liabilities Committee. Colonel Yate asked whether there was any allowance for the wives of junior officers, and dependent mothers and other dependants. Mr. Forster replied: Not in the form of these allowances, which are confined to households where there were children. Mr. Billing asked whether there were not many young officers whose obligations made their positions worse than those of privates. Mr. Forster replied that the arrangement just mentioned was intended to obviate that hardship; the Civil Liabilities Committee was already working a scheme whereby assistance was given to officers in respect of rent, rates, insurance, and interest on mortgage. Mr. Forster added, in reply to Colonel McCalmont and Mr. Faber, that these allowances could be given only on application, but steps were being taken to call the attention of officers to the opportunity. The wish was to make the machinery as simple as possible. Officers at home would have to apply for their children. In cases of officers abroad applications might be made by the wives or guardians of the children.

The Re-examination of Attested Men.—In reply to Mr. MacCallum Scott, Mr. Macpherson said that it was intended to modify the present instructions with regard to attested men rejected on re-examination, and to issue a new form of medical classification certificate.

THE WAR.

OPEN PNEUMOTHORAX.

PRIMARY SUTURE OF THE LUNG.

DR. F. LANDOIS, Oberarzt in a Reserve-Feldlazarett, writing on wounds of the thorax,[1] recommends primary suture of the lung in cases of open pneumothorax, but states that the operation could only be carried out in stationary warfare and in a well-equipped hospital. He had adopted the method in 9 cases, 2 of which were almost hopeless from wounds in the abdomen and spine. Of the remaining 7 cases, 5 recovered. A simple pressure apparatus constructed on the Auer-Melzer principle proved a most useful accessory, but was not available in the first few cases. A pressure of 8 to 10 mm. of mercury was employed. After excising the edges of the wound in the thorax, the ends of the fractured ribs were nipped off and the wound enlarged so as to admit the hand within the thorax. It was important not to make the aperture unnecessarily large, for subsequent closure of the wound was rendered more difficult thereby and the respiratory mechanism was interfered with. The lung was then drawn out with a volsella, the wound in it sutured with fine silk, and the lung surface fixed to the edges of the wound by sutures. The sutures were passed deeply into the substance of the wounded lung, but separate suturing of the pleura was unnecessary. As a rule no difficulty was experienced in closing the wound; in one case, however, the infarcted lung tissue was so friable that the edges of the wound could not be readily approximated, and at the *post-mortem* examination the pleura contained blood which had escaped from small lacerations at the site of the stitches. In war it was always desirable to reckon on the occurrence of a secondary empyema, although this was not constant. It was therefore important, even in small wounds where the aperture in the thorax could be closed without difficulty, to fix the lung to the site of the wound, and thus obviate a total empyema should suppuration occur. In most cases, however, owing to the large size of the aperture in the thorax, this had to be closed by the lung itself by means of silk sutures passed through the lung tissue and the musculature around the opening. It was further important that the sutured wound in the lung should be fixed in the opening in the thorax, so that a possible suppuration of the lung might be readily dealt with. Should this arise, rib resection became necessary, but should not be undertaken until adhesions had formed—that is to say, about ten to fourteen days from the first operation.

Open pneumothorax without wound of the lung resulted chiefly from tangential wounds. If the track were long several ribs were usually fractured, and extensive infarction of the lung might occur. The latter circumstance added greatly to the gravity of the case. Of the two cases of this group, extensive infarction was present in one; the sutures in the lung tore through, the pneumothorax recurred, and haemorrhage occurred into the pleura with fatal result. The second case was fatal from injuries in other parts of the body.

Open pneumothorax with wound of the lung occurred in five cases, which were treated by suture of the wound and circular fixation of the lung to the aperture in the thorax. In one the external aperture was too large to be closed by the lung alone, and a tampon, around which the intercostal musculature was sutured, was successfully used to complete the closure. In three of the cases empyema resulted, necessitating subsequent rib resection. These three cases recovered; the fourth case was cured without any complication; the fifth was fatal from putrid necrosis of the muscles and subjacent lung tissue, cutting through of the sutures, and recurrence of the open pneumothorax.

Open pneumothorax associated with wound of the diaphragm and an abdominal organ should be treated by transdiaphragmatic laparotomy, when that is practicable. The principle of this operation was to shut off the pleural cavity as quickly as possible from the danger of infection from the peritoneum. The operation, which was best done under pressure narcosis, consisted in fixing the lung within the edge of the aperture in the thorax, enlarging the wound in the diaphragm by an incision in the direction of its fibres, and fixing the wound circularly to the thorax wound, the pleura being by this means shut off. The abdomen could then be dealt with without fear of infecting the pleura. In a case of this kind, in which the right vault of the diaphragm and liver were wounded, an empyema followed the operation; this was treated by rib resection, and the patient recovered. Where the lung was fixed by old adhesions to the parietal and diaphragmatic pleura, transdiaphragmatic laparotomy was not practicable.

[1] Bruns's *Kriegschir.*, Heft 15, p. 111.

IMMEDIATE CLOSURE.

Dr. K. Hanusa, Stabsarzt in a Feldlazarett, recommended immediate closure of the wound in cases of open pneumothorax.[2] In 9 of the 11 cases so treated there was haemoptysis, which was taken to be evidence that the lung was wounded; 6 of the cases were perforating wounds and in five the projectile was retained. The following technique was adopted: Immediately on receiving the case the edges of the wound were excised, and fragments of bone removed; interrupted sutures were then passed through all the layers of the tissue, as far as that was possible, and the wound closed till no further issue of blood or air took place. The operation was performed under light local anaesthesia with ethyl chloride. The beneficial effects of the operation manifested themselves in the course of a few hours; the breathing became quieter, the pulse full and stronger, and the cyanosis disappeared.

The dangers which appeared to be associated with immediate closure of the wound were infection, haemorrhage from the lung, and hypertension-pneumothorax.

Infection in the line of the sutures occurred in six cases; necrotic patches appeared in the skin or superficial abscesses in the soft parts, but healing of the pleura and of the overlying muscular tissue was in no degree interfered with. As regards infection of the lung, the author's experience led him to believe that resistance to infection was possessed in greater degree by that organ than by other tissues. For, while extensive incisions for progressive infection were frequently necessary in wounds of the limbs, lung wounds received in the same battle healed in two to three weeks. Moreover, the haemothorax, which is always associated with wound of the lung, had been frequently aspirated and was always found to be sterile. It did occasionally happen, however, that a late abscess developed after several weeks' freedom from fever. Infection of a haemothorax—that is to say, formation of an empyema—was of less frequent occurrence than might be theoretically anticipated, and, as compared with grenade wounds of other parts, this was a striking fact. In 30 cases of haemothorax rib resection for empyema was called for in 4 cases only; of the 11 cases of open pneumothorax treated by immediate closure of the wound, empyema occurred in one. This was a grenade wound of the lower part of the thorax on the right side, with wound of the lung; the apertures of entry and exit were not more than 12 cm. apart, and there was a small haemothorax; bleeding from the wound commenced on the fifth day; on the fourteenth day after suturing the wound, by which time the lung had become redistended and adhesions had formed, a small empyema appeared.

As regards haemorrhage from the lung, it had been recently recommended that the wound in open pneumothorax should be enlarged in order to examine the surface of the lung and close any wound found. Hanusa considered that when the original wound was too large for immediate closure this practice was to be commended, and always adopted it; but when it was remembered that the patients had survived a rough transport before reaching the Feldlazarett—often as much as eight hours after wounding—it was clear that closure of the wound would suffice for the arrest of haemorrhage in most cases. The indication for suture of a wound in the lung was the behaviour of the pulse. A bad pulse at first did not indicate suture, but if after closure of the wound the signs of haemorrhage persisted, the indication was present. The late haemorrhage from the lung described by some surgeons as occurring from eight to ten days after wounding, and due to softening of the lung tissue, had not been observed; nor did hypertension-pneumothorax occur in any of the cases; the air in the pleural sac was rapidly absorbed, and with appropriate respiratory exercises the lung rapidly re-expanded. Hanusa

[2] Bruns's *Kriegschir.*, Heft 29, p. 749.

kept his cases under observation for three to four weeks on the average, and all did well. He had one case of late pneumothorax, arising sixteen days after wounding. A grenade wound of the size of a shilling was present over the middle of the right scapula; below this was a large area of dullness with absence of breath sounds, and respiratory movements were diminished on that side; there were marked cyanosis, dyspnoea, and haemoptysis. Later, bronchial breathing was audible above the dull area at the right base. On the sixteenth day sero-sanguinolent fluid and air were discharged from the wound, associated with severe cyanosis and dyspnoea. The wound was closed with sutures, the dyspnoea and cyanosis rapidly subsiding. Recovery was uninterrupted

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON PROBATIONER G. P. WALKER, R.N.V.R.

The casualty list published on March 5th reports the death of Surgeon Probationer Gordon Patrick Walker, R.N.V.R., killed in action. Presumably he was a member of the complement of the destroyer recently reported to have been lost with all hands in the North Sea on March 1st, by striking a mine. He was the younger surviving son of Mr. John Walker, of Glasgow, and was 19 years old. He attended the medical classes at Anderson's College and St. Mungo's College, gained the class medal for chemistry and physics at the former, and passed his examination in anatomy with distinction. On receiving his commission as surgeon probationer he went to Haslar Hospital for a two months' course, and was afterwards appointed to a destroyer. His elder brother was killed at Loos in September, 1915.

ARMY.

Died of Wounds.

CAPTAIN H. BARR, R.A.M.C.

Captain Hugh Barr, R.A.M.C., died of wounds at Salonica on February 21st, aged 35. He was the son of Mr. Hugh Barr, of Paisley, and was educated at Glasgow University, where he graduated M.B., Ch.B. in 1905, afterwards studying at King's College, London, and at Hamburg; and taking the D.P.H. of the London Colleges in 1909. After filling the posts of house-surgeon of South Shields Infirmary, and of medical officer of the Brook Fever Hospital, Woolwich, he went to New Zealand, where he was in practice at Alexandra, Otago. He returned home in 1915, and took a temporary commission as lieutenant in the R.A.M.C., being promoted to captain on completion of a year's service. His cousin, Temporary Captain George Flett Barr, R.A.M.C., also of Paisley, died in France in March, 1916.

Died on Service.

SYDNEY D. ROWLAND, M.A.Camb., M.R.C.S., L.R.C.P., Major R.A.M.C.

We regret to announce the death, on March 6th in France, from cerebro-spinal fever, of Major Sydney Donville Rowland, R.A.M.C., M.R.C.S., a bacteriologist at the Lister Institute.

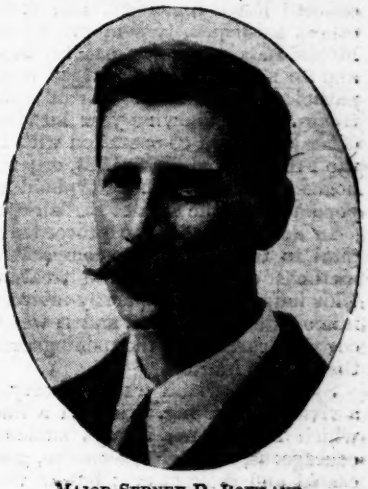
Sydney Rowland was the son of the Rev. W. J. Rowland, and was born in 1872. He was educated at Berkhamsted Grammar School, whence he proceeded in 1889 to Cambridge with a science scholarship at Downing College. At Cambridge he took the first and second parts of the Natural Science Tripos, and was for a short time assistant demonstrator in the Physiological School under Professor Michael Foster. Whilst at Cambridge he was a prominent member of the Cambridge Natural History Society, and sometime its president. At this time he was keenly interested in almost every department of natural science and also in philosophy. As a mutual friend who was his contemporary has expressed to me, he was a real amateur of science in the best sense of that word.

After leaving Cambridge he came to London and completed his medical studies at St. Bartholomew's Hospital. I don't think the clinical side of medicine ever appealed to him, and much of his time was spent in studying the development of knowledge of *x* rays, which had just been discovered, and their application to medicine. He was also obliged to devote much of his energy to gaining subsistence. He qualified in 1897, but finding by experiment that the examiners for the Cambridge M.B. would not accept knowledge of physiology and general science in lieu of that of midwifery, he never graduated in medicine at his university.

After qualification he had an assorted career for a couple of years, during which he held a minor post on the editorial staff of the BRITISH MEDICAL JOURNAL, of which his uncle, the late Ernest Hart, was editor, and also practised as an *x*-ray specialist. Neither of these ventures was entirely successful. Rowland, although a good and interesting conversationalist, was singularly devoid of any literary faculty, and it was impossible for one of his nature and unbusinesslike habits to remain at his rooms and await the advent of patients.

At the end of 1898, however, he received an appointment which was to his taste—namely, that of assistant bacteriologist at the Lister (then Jenner) Institute under the late Dr. MacFadyean, and he remained a member of its staff until his death. Henceforth he was able to devote the whole of his time to scientific investigation. The Lister Institute appointment was in many ways particularly suitable, as it involved little or no routine teaching or other duties.

In addition to possessing a sound knowledge of engineering principles, Rowland was an extraordinarily good mechanic, and never happier than when devising technical means for attacking some problem or making the apparatus to be used in the investigation. His skill in both directions was always at the service of his colleagues, and most of us are under great obligations to him in this respect. This peculiarity of his dominated his whole scientific career. As a matter of fact, he was unduly interested in devising techniques and in overcoming technical difficulties, and once these fundamental obstacles were overcome his interest in the actual work of the investigation was liable to be less keen.



MAJOR SYDNEY D. ROWLAND.

Whilst at Cambridge he became a good microscopist, and subsequently he devoted much time to the study of the microscope and the development of his skill in its use. He ultimately acquired a command of microscopical technique which was equalled by few British pathologists. It is characteristic that his first scientific paper should have dealt with the structure of bacteria—a difficult subject, requiring the utmost resources of the optical apparatus at that time existing. Unfortunately this paper became almost buried, as it was published in the *Transactions* of the Jenner Institute, which had only a very limited circulation. To the same publication he also contributed a description of a simple apparatus for pulverizing tubercle bacilli.

In 1899 Rowland was engaged with MacFadyean and Morris in an investigation upon the fermentative properties of yeast-juice free from living cells, which Buchner had recently discovered produced alcohol from sugar. In the following year he and his colleague Hedin discovered that the cell juices of organs, and particularly the spleen, contained proteolytic enzymes. The technical difficulties of these researches devolved upon Rowland. About this time Dewar had, by help of his vacuum flask, shown how liquid air could be handled in large quantity. MacFadyean having ascertained that microbes were not killed at the temperature of liquid air, a temperature at which all chemical processes must be reduced to a minimum, it occurred to MacFadyean and Rowland that grinding bacteria at this low temperature might yield an antigen, the injection of which would lead to the production of a curative serum for diseases such as typhoid. The idea was worthy of extensive trial. Rowland was again engaged in

conquering the technical difficulties inherent in this research. His efforts were successful, but unfortunately, although many facts of academic importance were brought to light during the lengthy research, the main object of the attempt was not achieved.

In 1905 Rowland was seconded to work upon the Commission for the Investigation of Plague in India, and proceeded to Bombay early in the year. During two years he took an active part in the labours of the Commission, which were directed to the study of the means of spread of bubonic plague; they established the dependence of the human epidemic upon the rat epizootic, and the rat-flea as the essential go-between from rat to man. On his return to this country Rowland was engaged in an investigation primarily with a view to the improvement of methods of prophylactic inoculation against plague, and during the years 1909 to 1914 published a number of papers on this subject in the *Journal of Hygiene*. The importance of these papers is not confined to their bearing on plague prevention; they concern equally the whole subject of vaccination against bacterial diseases, and are the most thorough and quantitative researches in this domain of immunology.

He had just about completed this investigation when war broke out. He at once volunteered his services, obtained a commission as lieutenant in the R.A.M.C., and in October, 1914, was sent to France in charge of No. 1 Mobile Laboratory. To the equipment of this he had devoted much ingenuity, and it served as a model for others subsequently sent out by the War Office. No. 1 Mobile Laboratory was attached to General Head Quarters, and for many months Rowland was occupied with general pathology and the discovery of typhoid carriers among the troops. The following year he was promoted to the rank of major, and in co-operation with the civil authorities and the Friends' Red Cross Unit, organized and carried out a house-to-house search for typhoid carriers among the civil population of the area of British operations.

In February, 1916, he proceeded to No. 26 General Hospital to take part in a comparative study of the various methods employed in the treatment of septic wounds. This inquiry was frequently interrupted by duties of more immediate importance, and it was whilst engaged in discovering carriers of the meningococcus that he contracted the disease himself.

Sydney Rowland was a cheery, erratic creature, with a vivid zest in life. He had a fine imagination, towards which he was not always sufficiently critical. He was courageous, impulsive, sensitive, generous to a fault, withal casual and thoughtless; but, in view of his many sterling qualities, his friends willingly put up with any shortcomings. He was a charming companion, and much beloved by those who knew him well. Especially he endeared himself to all those who had to work under him. He was a great favourite with children, and among those who will miss him most will be the many young people of his acquaintance.

C. J. M.

CAPTAIN G. S. HUSBAND, D.S.O., I.M.S.

In the casualty list published on March 6th was announced the death on service of Captain George Staunton Husband, D.S.O., I.M.S. He was born on November 17th, 1879, educated at Edinburgh University, where he graduated M.B., Ch.B. in 1904, entered the I.M.S. as lieutenant on February 2nd, 1907, and was promoted to captain on February 2nd, 1910. On August 8th, 1911, he was appointed medical officer of the 9th Bhopal Infantry. Before the war he was officiating in civil employ in the gaol department in the Punjab, and on November 29th, 1914, was posted to act as medical officer of the 69th Punjabis. Throughout the present war he had been serving in various theatres of war, and received the D.S.O. on June 3rd, 1916.

LIEUTENANT J. J. HARTY, R.A.M.C.

Lieutenant Jas. Johnson Harty, who died on March 5th, aged 37, was a native of Cork, and received his medical education at Queen's College, Cork. He took the diplomas of L.R.C.P. and S.I. in 1902, and that of F.R.C.S.I. in 1912. After practising in partnership with Dr. Crossley of Burnley, he succeeded Dr. Robertson at Colne about four years ago. He was honorary medical officer of the Colne Cottage Hospital, and a member of the Burnley Division of the British Medical Association. Dr. Harty took a temporary commission in the R.A.M.C. in September last, and commenced his duties at Sheffield. He was selected for service in Mesopotamia, but illness prevented him going there. He had not been in good health for some time prior to his death.

Lieutenant-Colonel F. W. Hewitson, Canadian A.M.C.
Major H. Jones, Canadian A.M.C.

Wounded.

Surgeon F. G. E. Hill, R.N.
Captain A. P. Bluett, M.C., R.A.M.C. (temporary).
Captain C. O'Brien, R.A.M.C (temporary).
Captain E. A. Sanbrook, A.A.M.C.
Lieutenant A. Y. Dabgolkar, I.M.S.
Lieutenant D. P. Thomas, R.A.M.C. (temporary).

Erratum.

In the casualty list published on February 22nd the name of Lieutenant W. J. Pearson, R.A.M.C., was included in the list of wounded (BRITISH MEDICAL JOURNAL, March 3rd). On March 10th it was announced that Lieutenant W. J. Pearson was an officer, not of the R.A.M.C., but of the Royal Flying Corps.

NOTES.

HONOURS.

A SPECIAL supplement to the *London Gazette* issued on March 12th announces a further list of awards to officers and men for gallantry and devotion to duty in the field. The following medical officers are included: Temporary Captain Allen Coulter Hancock, M.C., R.A.M.C., receives a bar to the Military Cross, and Temporary Lieutenant George Cleverdon Hartley, M.B., R.A.M.C., attached to the East Surrey Regiment, receives the Military Cross.

FOREIGN DECORATIONS AND MEDALS.

A number of decorations and medals have been awarded by the allied powers to members of the British forces for distinguished services rendered during the course of the campaign, and the King has given unrestricted permission in all cases to wear the decorations. The following medical officers are among the recipients:

By the King of Serbia.

Order of Saint Sava: Major Herbert St. Maur Carter, D.S.O., M.B., R.A.M.C. (3rd Class); Captain Ryder Percival Nash, R.A.M.C. (5th Class).

Distinguished Service Medal: Temporary Captain Rainald Heaton, R.A.M.C.

By the King of Montenegro.

Silver Medal for Bravery: Temporary Captain Donald Olson Riddell, D.S.O., M.B., R.A.M.C.

By H. H. the Sultan of Egypt.

Order of the Nile, 3rd Class: Colonel James Fallon, A.M.S.

England and Wales.

THE report presented to the recent annual meeting of the Metropolitan Emergency Surgical Aid Corps stated that the rotas had been summoned twelve times, including a call to the scene of the explosion on January 19th, when 103 members responded to the call, of whom 53 were sent to the scene of the disaster. A naval section consisting of 12 chief surgeons, 43 surgeons, and 13 anaesthetists, to assist naval surgeons to deal with wounded brought into any port in the United Kingdom, had been in existence for nearly a year and was ready to answer any call the Admiralty might make. The corps now consisted of 238 members, and were distributed as follows: Naval Section 68, Military Section (Home Forces) 62, Metropolitan Police Section 108. Each section was equipped with a supply of all necessary appliances, and had at its disposal a fleet of motor cars, while the London General Omnibus Company kindly lent motor omnibuses and the Great Eastern Railway Company ran special trains when necessary. The metropolitan police had installed a private telephone wire at the head quarters of the corps, 1, Wimpole Street, W., and the War Office had provided an all-night attendant to receive and transmit calls.

The Council of the Royal Society of Medicine has adopted a resolution in favour of legislation for the purpose of rendering it a penal offence for any person other than a registered medical practitioner to treat or advise concerning the treatment of venereal diseases, or to sell, supply, or dispense drugs as a remedy for these diseases unless the said drugs are supplied on the prescription of a registered medical practitioner, and only for the exclusive use of the person for whom the said prescription was intended.

MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.

At the meeting of the London County Council on March 6th it was announced that medical and dental treatment would be provided for school children on the basis of 134,956 cases during the year now beginning; this total would comprise 26.400 eye cases, 12,980 ear, nose, and throat cases, 2,026 ringworm cases, 25,790 minor ailments, and 67,760 dental cases. At the end of 1916 the provision actually made was for the treatment of 115,990 cases at forty-eight centres, and the attendance on the whole was satisfactory. The number of cases treated in the throat departments had, however, been below the number provided for, and it was proposed to reduce accommodation for this treatment at certain centres. Owing to the additional number of cases of other kinds five additional assistant organizers will be appointed as and when required. The total cost of the medical and dental treatment in the draft annual estimates for 1917–18 was £40,555, as compared with £37,400 for 1916–17. The increase is made on the assumption that certain of the new centres which have been sanctioned by the Board of Education but not yet established owing to the difficulty of acquiring suitable premises, would be opened in the course of the year. The Council also accepted a proposal that it should co-operate with the Borough of St. Marylebone Health Society in the organization of a dental centre for the treatment of children under school age. An agreement is to be entered into with the society for the treatment of 1,540 cases a a year.

Scotland.

PROFESSOR ALEXANDER GIBSON, M.B., F.R.C.S., Sir Donald MacAlister, M.D., Mr. A. Ernest Maylard, M.B., Dr. Henry Harold Scott, and Dr. John Tait are among those recently elected Fellows of the Royal Society of Edinburgh.

Mr. James Taylor, lecture table assistant to the professor in the chemistry department at Marischal College, Aberdeen, was presented with a cheque for £70 and a suitably inscribed silver salver, on March 9th, to commemorate his retirement after forty years' service. Professor Soddy, in making the presentation, spoke of the admirable work Mr. Taylor had done, and said that the fund subscribed by graduates, chiefly of the medical and science faculties and the staff and students of the university, expressed their appreciation of it. Mr. Taylor acknowledged the presentation in a few suitable words.

Parish councils in the Highlands and Islands seem to have to go rather far afield to find medical officers. A correspondent has sent us a copy of the Allahabad *Pioneer* of January 31st, in which the president N.R. Medical Association advertised that a medical practitioner was required for one of the Orkney Islands. The duties, it was said, were very light, and there was a promise of a salary of £300 a year and a free house. It is a far cry from Allahabad to ultima Thule, and before undertaking the journey it would be well for the applicant to make quite sure that he will find the duties congenial as well as light.

Major William Haig, M.B., R.A.M.C.T., attached 5th Black Watch, who recently received the D.S.O., was at a public meeting at Crieff, where he practised, presented with an address from the inhabitants enclosed in a silver casket of old Celtic design. On the centre panel was an inscription and on either side the crests of the Black Watch and of Major Haig. Lieutenant Colonel Wyllie of the 6th Black Watch, who was present, paid a tribute to Major Haig's skill as a medical man, his sound common sense, and his invariable cheerfulness. He believed that the wonderfully small amount of sickness in the army, which was one of the marvels of the war, was largely due to men like Dr. Haig, who were in charge of the regimental work.

Ireland.

THE Local Government Board has recently refused to sanction the appointment of men eligible for military service to be in one instance medical officer of a dispensary district and in another locumtenent. It has also refused to sanction a war bonus of £50 each granted by the Oldcastle Board of Guardians to its three medical officers.

DANGER OF SMALL-POX.

Sir Joseph McGrath, Registrar of the National University of Ireland, in moving the adoption of the report at the annual general meeting of the Royal Dublin Society, referred to the lecture delivered before the society a short time ago by Professor McWeeney, M.D., in the course of which attention was drawn to the risk of an outbreak of small-pox in Ireland. During the decade 1831 to 1840 the number of deaths from the disease in Ireland was 58,000. In the following decade the number had fallen to 38.000, and it came tumbling down in succeeding decades, coincident with the spread of the practice of vaccination, until 1907, when it entirely disappeared; and from that date to the present day there had been no death from small-pox in Ireland. That was a satisfactory state of affairs, but, unfortunately, both in Great Britain and in Ireland, owing to various loopholes in the law as to vaccination, a large proportion of the population was at the present time unvaccinated. The proportion of successfully vaccinated children, which in 1905 was 82 per cent., in 1913 was 61 per cent. This meant, as Professor McWeeney said, that should small-pox be introduced into Ireland—a by no means improbable contingency—the disease would find an abundance of totally unprotected individuals. It would thus gain in virulence and ultimately attack persons insufficiently protected by their primary vaccination. A dreadful calamity might thus ensue. Small-pox in its mild form was often difficult to recognize, and might readily be imported in the person of a prisoner of war. An outbreak of small-pox was stated to have recently taken place in Rhenish Prussia, and Sir Joseph said that he was informed that there had been several serious outbreaks of small-pox in other parts of Germany; in view of that it was of the utmost importance that Professor McWeeney's warning should have widespread publicity.

Correspondence.

GUNSHOT WOUNDS OF THE ABDOMEN.

SIR,—The very admirable articles on the above subject in the last issue of the JOURNAL have called to my mind the surgical procedures which were in vogue some centuries ago, and which are set forth in the first work published in the English language on gunshot wounds.

The *Treatise of Gunshot*, by Thomas Gale, was written in London in 1586. It opens with an ambitious poem by John Field, chirurgion, and devotes much space to prove that "gun-powder is not venimous, neither the shot of such hotnesse as is able to warme the flesh, much lesse to make an askar." As to "wounds with shot made in the third ventricle or bellie," Master Gale writes as follows:

> If the shot have pearced through the bellie, and have wounded either the stomacke, liver, splene, kidneis, intestines, bladder, or anie of the greate veines or arteries, then there is no hope of life to be looked for. But if the shot have pearced the bellie, and yet not wounded anie of the forenamed members, then the shot being taken out, there is some hope of recoverie. Therefore you shall labour to get out the shot, placing the patient upon the wound, and roll him from part to part, provoking thereby the shot to come to the orifice of the wound, then with a probe made apt and convenient for the same use, take out the shot.

It will be noticed that the procedure here adopted is identical with that employed by a child in its endeavour

to get a penny out of a money-box—namely, by rocking the box to and fro and by using a bent wire.

If rolling the man about failed to bring the shot to the orifice of entry Master Gale advised that he should be left alone, on the grounds that "there is great perill in long searching" and that "the aire doth alter the inwarde partes." He further gives this experience:

I my selfe serving at Muttrell, under the mightie and puissant Prince, Henrie the eight, about the yeare of Christ's incarnation 1544 had the experience of eleaven sundrie souldiours shot into the bodie, without pearcing of anie inward member, and I could not get out the shotte without greate difficultie and making incision, and therefore I letting the shotte remaine within the bodie, did perfectlie cure the patients and they lived long after without anie griefe.

According to the custom of the time, if any bowel protruded it was washed with red wine mixed with various septic substances before it was returned.

In the place of Dakin's solution Gale employed a mundificative or cleansing agent composed of oil of roses, turpentine, rosemary, "the herbe called horsetaile," wormwood, the lesser centaury, St. John's wort, plantain, and earth worms washed with wine.

Happy was the wounded "souldiour" who escaped the perils of the casualty clearing station in the days of Thomas Gale.—I am, etc.,

Richmond Park, March 11th. FREDERICK TREVES.

THE PROPHYLAXIS OF VENEREAL DISEASES.

SIR,—As my name has been mentioned by two of your correspondents in connexion with the discussion on Dr. C. J. Macalister's address at the Royal Institute of Public Health on January 31st, may I be allowed to reiterate the argument I used on that occasion?

That the connexion between immorality and venereal disease is not one of cause and effect is shown by the existence in other times and places of communities in which sexual vice was rampant and venereal disease non-existent. What applied to these communities applies also to individuals in our own community; apart altogether from the numerous cases of "innocent" infection, there is no close relation between an individual's standard of conduct and his (or her) freedom from venereal disease. As is well known, many ignorant and (comparatively) innocent youths contract disease the first and only time they "go wrong," whereas the libertine will often pursue his path with complete immunity to infection. This fact, that an act of immorality is not inevitably followed by disease, seems to me sufficient to refute the idea still so commonly encountered (implicitly if not explicitly), that these diseases play an ordained part in the punishment of wrongdoing.

But, it may be argued, granted that we abandon this conception of disease as a Divine vengeance, does there not remain the point that the fear of these diseases is a useful deterrent, and that their prevention would tend to encourage immorality? In reply to this, I should say, first, that I share the doubt, expressed by others, as to whether the fear of venereal disease is really sufficient to influence the conduct of many men and women. Since the outbreak of war I have given lectures to over 100,000 soldiers on this subject, and in attempting to encourage continence, I rely much more on other points than on the mere description of these diseases. Perhaps the chief value of such a description is that the hearers are less likely to neglect or conceal venereal disease, should they happen to contract it.

But even if the deterrent effect of the fear of disease be really great, is a "morality" thus dependent on a fear of physical consequences the type of morality aimed at by religious and ethical teachers? Surely not; the true sex-morality should be one based upon a proper conception of sex-relation and the spiritual (or ethical) advantages of self-control.

It is for these reasons that I advocate the prophylaxis of venereal disease as a legitimate branch of preventive medicine, to be pursued quite independently of possible effects on sex-conduct.

But, having said this, I am far from imagining that the spread of prophylactic knowledge throughout the civilian population would prove a decisive victory in the campaign against venereal disease. I should regard it as a useful advance, but equal or greater advances may be reasonably expected from the educational campaign now in progress, and especially from further diminution of alcoholic intemperance, easily the most powerful ally of these diseases. The struggle against venereal disease is an arduous one, and surely it behoves us to neglect no weapon likely to help in securing victory.—I am, etc.,

London, N.W., March 12th. OTTO MAY.

ROTATION OF THE LIVER ON ITS VERTICAL AXIS.

SIR,—Mr. John Howell's valuable contribution to the clinical history of "mobile liver" is of almost equal interest to the physician and to the surgeon. Owing to its unyielding attachment to the diaphragm and to the heart by means of the inferior vena cava, the liver cannot wander far; it can only swing from that central suspension, so far as its ligaments will stretch, either forwards and slightly to the left or in rare instances backwards and to the right. We are informed by Professor Arthur Keith that the considerable rotation witnessed in this case is peculiar to the female sex (is this perhaps partly due to the greater relative horizontal measurement of the female liver?), and that it may be regarded as the result of an extreme prolapse. Mr. Howell's lucid description does not specify any descent either of the anterior edge or of the posterior border (below which the lower half of the kidney could be felt). This suggests for the production of this form of displacement a mechanism *à deux temps*: a preliminary prolapse, to be followed by a steady drive upwards and to the right. But we are left without an explanation for the remarkable failure of all efforts to bring back the liver into its normal situation. It might have been caused by adhesions at the back. If not, was it perhaps simply due to the supine posture keeping the thick end of the liver tightly wedged in its dorsal position?

I venture this suggestion for what it may be worth. Possibly in this and in similar conditions the left lateral decubitus might sufficiently ease the right costal arch to enable the bulky right lobe to be raised into its axillary site.—I am, etc.,

London, W., March 3rd. WILLIAM EWART.

THE OLDEST AGE OF PARTURITION.

SIR,—The following case may interest Dr. Fred. J. Smith (March 10th, p. 349). Mrs. C. was born on May 17th, 1865, married at 18, first child born when she was 19; she has had eleven children. I have attended her in all but the first, the last child was born on December 16th, 1915, the mother being 50 years and 7 months old. The baby is alive and well.—I am, etc.,

Hitchin, March 12th. JAMES H. GILBERTSON.

Universities and Colleges.

UNIVERSITY OF OXFORD.

LESLIE PEARCE GOULD, M.A., M.Ch., of Christ Church, Oxford (son of Sir Alfred Pearce Gould), has been elected Radcliffe Travelling Fellow for the years 1917-20.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on March 8th, when Sir Watson Cheyne, President, was in the chair.

Licence in Dental Surgery.

Diplomas were granted to eleven candidates found qualified at the recent examination.

Central Midwives Board.

The Council recorded their high appreciation of Mr. Golding-Bird's services as the representative of the College on the above Board during the past eight years. (Mr. Golding-Bird's successor is not yet appointed.)

General Medical Council.

A vote of thanks was recorded by the Council to Sir Henry Morris for his services during thirteen years as a Representative of the College on the General Medical Council. Mr. H. J. Waring was appointed in Sir Henry Morris's stead for the next five years.

Obituary.

THE death of Dr. JOHN MORTIMER has caused widespread regret in Exeter. He had been in ill health for several years and recently had suffered very frequent attacks of angina pectoris, in one of which he died on March 9th, at the age of 61. He was the fourth son of Mr. William Mortimer, stockbroker, of Exeter. He was educated privately at Dawlish, and after matriculating at the University of London entered the medical faculty of University College. He took the diploma of M.R.C.S.Eng. in 1876 and graduated M.B.Lond. in the following year. He never seemed to seek academic distinctions, but there was always about him as a student an air of quiet efficiency, which remained with him through life, and was one of the secrets of the conspicuous success he attained in practice. After acting as a house-surgeon to the West London Hospital and resident medical officer to the South Staffordshire Hospital, he returned to his native city between thirty- and forty years ago, and entered into partnership with Mr. Alfred Steele Perkins. Although he held the appointment of consulting surgeon to the Exeter Dispensary, he was throughout his life a general practitioner who combined with a shrewd knowledge of mankind a keenness of intellect which enabled him quickly to make himself acquainted with all new doctrines in medicine, and a well-balanced judgement to appraise their value. He early attained a commanding position, and for many years enjoyed the leading family practice in Exeter. Tactful, charitable, and tolerant, he could be sympathetic or severe as occasion required. He was for a number of years medical officer to the Devon County Prison, and on several occasions his capacity and judgement were severely tried while holding that office. He was also examining medical officer to the Devon Constabulary and medical attendant to the head quarters staff. He married some eleven years ago, and his widow and one child, a daughter, survive to mourn a loss in which many friends far and wide will deeply sympathize with them.

IT is with deep regret that we record the sudden death, on February 27th, of Dr. R. B. SMYTH, Medical Superintendent of County Asylums, Gloucester, at the early age of 45. He came of an old Ulster family, and his father and surviving brother, who are also members of the medical profession, are at present in practice in Belfast. He was educated at Uppingham and Trinity College, Dublin, and graduated M.A., M.B., B.Ch., B.A.O. in 1893. In the following year he became clinical assistant at St. Luke's Hospital, and in 1895 was appointed assistant medical officer at the Gloucester County Asylum, becoming superintendent of that institution on the death of Dr. Henley in 1908. From the outset he won the entire confidence of his committee; his affection for his patients and the extraordinary interest he took in their individual welfare were at all times predominant. Dr. Smyth was a keen follower of all kinds of outdoor sport. A steady batsman and a good captain, he did much for cricket in the asylum; he also in his younger days played regularly for the Gloucester City team. He was a good game shot and fly fisherman and a lover of dogs; at one time he was a breeder and exhibitor of Irish terriers, and on several occasions was the holder of the Irish Terrier Cup. He was a member of the British Medical and Medico-Psychological Associations. The funeral took place in Belfast; a short memorial service attended by members of the committee and staff was previously held in the asylum chapel. He leaves behind many to mourn his loss, and not least important among them are those amongst whom he lived so many years—his colleagues, his staff, and patients.

THE death of Dr. C. FRED. POLLOCK removes a familiar and genial figure from the ranks of Glasgow west-end practitioners. His loss will be deeply felt by a wide circle of old patients and old friends. His patients appreciated his professional skill and the tireless interest which he took in their welfare, and were comforted by his cheerful and reassuring manner. He was the son of the Rev. John Pollock, M.A., and was born at Baldernock in 1854. He received his early education in Glasgow Academy under Dr. Donald Morrison, and studied medicine in the university of Glasgow, where he graduated M.B., C.M. in 1880 and M.D. in 1882, and took the F.R.C.S.Edin. in 1884. He was also a Fellow of the Royal Society, Edinburgh. His medical appointments were—ophthalmic surgeon to the Royal Hospital for Sick Children, Glasgow, and the Central Dispensary, Glasgow; assistant physician City of Glasgow Fever Hospital; assistant to professor of physiology, Glasgow University; and assistant to pathologist, Glasgow Western Infirmary. In 1886 he published a book on *The Normal and Pathological Histology of the Human Eye and Eyelids*; in 1889 a work on *Leprosy as a Cause of Blindness*; and in 1885–6 *Aids to Ophthalmology*. Dr. Pollock was a well-read man, with a broad outlook on life. He was an enthusiastic and very proficient photographer and an excellent botanist. A skilful physician and a warm-hearted friend—his memory will be kept green in the hearts of those who knew him well.

DR. THOMAS BOOTH BRIERLEY, of Tattenhall, Cheshire, died on January 28th at the advanced age of 84. He was the son of the late Dr. T. B. Brierley and received his medical education at Queen's College, Birmingham, taking the diplomas of M.R.C.S.Eng. and L.S.A. in 1853; afterwards he held the post of assistant house-surgeon to the Queen's Hospital, Birmingham. He succeeded his father in practice at Tattenhall sixty-two years ago and had practised there ever since. He was for many years district medical officer and public vaccinator of the Tarvin Union. In August, 1910, he was appointed a Justice of the Peace for Cheshire and was a regular attendant at the petty sessional courts at Broxton. Dr. Brierley, who was well known and highly esteemed in Cheshire, did not adopt the motor-car habit, but attended to his practice with horses and on foot. He was a member of the Chester Division of the British Medical Association and was very active up to the time of his death; he seldom missed walking fifteen miles a day.

DR. W. GOODALL-COPESTAKE, who died on February 12th, was the youngest son of Mr. T. Goodall-Copestake of Kirk Langley, where he was born in 1836. After being educated at Repton School he was apprenticed to a doctor in the country, and after passing the matriculation examination of the University of London continued his medical studies at St. George's Hospital. He took the diploma of M.R.C.S. Eng. in 1858 and that of L.S.A. in the following year. After serving as house surgeon to the Derbyshire Royal Infirmary he joined the late Dr. Samuel Evans of Derby. Unfortunately he contracted an attack of typhoid fever, which invalided him for two years, and on returning from a voyage to Egypt he started practice in Duffield Road, Derby, where he continued his work until his retirement in 1909. He was formerly a member of Derby Choral Union, and for many years acted as honorary secretary to the Derby Orchestral Union; despite the numerous calls upon his time he cultivated his excellent musical talent, and was an expert performer on stringed instruments and a good vocalist. He was a member of the Derby Division of the British Medical Association.

DEPUTY SURGEON-GENERAL BENJAMIN WILLIAMSON, Madras Medical Service (retired), died at Durley, Camberley, on February 21st, aged 83. He was born on January 14th, 1834, the son of Dr. B. Williamson, and was educated at Marischal College, Aberdeen, where he took the degree of M.B. in 1854. Immediately afterwards he joined the army as an acting assistant surgeon and served throughout the Crimean war, being present at the battle of Inkerman and the siege of Sebastopol. After the war, he entered the I.M.S. as assistant surgeon on February 20th, 1856, becoming surgeon on February 20th, 1868, surgeon-major on July 1st, 1873, and brigade surgeon on January 1st, 1883; he retired, with a step of honorary rank, on January 27th, 1884. Dr. Williamson was the last survivor of the small number of officers of the I.M.S., some five-and-twenty, who had served in the Crimean war. There are at least eight retired officers of the Army Medical Department still living who served in that war.

Medical News.

COUNT GIAN GIACOMO DELLA SOMAGLIA, President of the Italian Red Cross, has been created a Senator of the Kingdom of Italy.

DR. A. L. J. MILLARD, physician to the Beaujon Hospital, Paris, who died recently, bequeathed nearly £30,000 for charitable and philanthropic purposes, mostly concerning the welfare of children.

IN view of the value of the rabbit as food, the Vice-Chancellor of the University of London has given instructions that it shall not be used in practical examinations in zoology for science students or in general biology for medical students during the period of the war.

CAPTAIN S. R. DOUGLAS, I.M.S. (retired), contributed to the last meeting of the Zoological Society of London an account of the results of an experimental investigation of the migration of woodcock breeding in the west of Ireland, showing that there had been an increase in the number so breeding.

THE report of Mr. J. W. Ogilvey, honorary secretary of the microscopical section of the Young Men's Christian Association, shows that the work in military camps and hospitals has been developed during the last quarter of 1916; seventy-three exhibitions were held and twenty-two lectures given. The subjects treated covered a very wide field, and included demonstrations of bacteria and spirochaetes.

THE first general meeting of the Medical Women's Federation is to be held at the house of the Medical Society of London, 11, Chandos Street, W., on Friday next, March 23rd, at 3 p.m. After a statement as to the history, aims, and objects for which the federation has been made, a resolution will be submitted expressing approval of the project; officers will be elected, and suggestions as to an annual medical meeting discussed.

AT the meeting of the Section of Balneology and Climatology of the Royal Society of Medicine on March 8th Dr. Fortescue Fox showed a number of mensuration instruments used at the Red Cross Clinic for the clinical treatment of disabled officers. They included protractors and arthrometers from the Grand Palais Hospital in Paris, as well as Professor Amar's arthrodynamometer and his cheirograph for measuring feeble pressure of paralysed hands. The exhibit also included goniometers and a torsion-meter designed at the clinic for measuring pronation and supination. Dr. Sonntag, medical officer to the clinic, exhibited an ergograph designed for estimating and recording the strength of muscular movements. Manipulation baths, which for the whole body can be used at about blood heat, or for single limbs at a much higher temperature (112° to 118° F.), were also described as useful in increasing the mobility of muscles and joints and improving their nutrition.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

LETTERS, NOTES, ETC.

THE PROPHYLAXIS OF VENEREAL DISEASES.

DR. JOHN R. GILLESPIE (Belfast) writes: Mr. Hugh Elliot, in his latest letter (BRITISH MEDICAL JOURNAL, February 24th, p. 280), appears to indicate his belief that the doctrine of punishment of the impenitent in a future life has been recently "exploded." That the doctrine was exploded almost 3,000 years ago is evident from Psalm xiv, 1: "The fool hath said in his heart, there is no God."

GAS GANGRENE.

DR. W. G. STEVENS (Renfrew) writes: Surgeon-General Sir G. H. Makins, K.C.M.G., C.B., in his Hunterian Oration reported in the BRITISH MEDICAL JOURNAL of February 17th, says that the "hospital gangrene" seen in the wars of the early part of last century did not in any way resemble the "gas gangrene" of to-day. In this connexion a few sentences from a report of a case in civil life, copied from *The Quarterly Perisecope of Practical Medicine*, published October, 1827, seem interesting at the present time:

"Joseph Sparks, aged 15, was admitted April 16th, 1827, to St. George's Hospital, under the care of Mr. Brodie, for compound fracture of both bones of the left leg, occasioned by jumping over a ditch; the bones were broken at about the middle. . . . The limb was put up in junks and union of the external wound attempted. . . . On the 18th complained of severe pain. . . . On the 20th mortification had appeared, extending downwards to the foot and upwards to the knee. . . . Before proceeding to amputate, it was remarked that there was an emphysematous crepitation in the thigh. . . . At 4 p.m. the limb was removed a little below the trochanters. . . . He bore the operation well, and on its completion the anxiety of the countenance subsided remarkably. On waking at 8 o'clock in the morning of the 21st the jaw was seen to be locked, the tetanus became fully marked, and at 10 p.m. the poor boy died."

SUBCUTANEOUS EMPHYSEMA DURING LABOUR.

MAJOR J. PHILLIPS, R.A.M.C. (Bradford) writes: From time to time cases of subcutaneous emphysema during labour are recorded, and as in that described by Dr. Milne (BRITISH MEDICAL JOURNAL, February 24th, p. 262) it is invariably assumed that the rupture is thoracic. When I was house-surgeon at Leicester Infirmary in 1899 I saw two or three cases of surgical emphysema due to injury in the neighbourhood of the lacrymal sac. The rapidity with which in these cases surgical emphysema spread all over the face and neck when the patient used a handkerchief was very striking. In every case of emphysema occurring during labour in which the mode of onset is described the eyelids (usually one eyelid) is first affected, as in Dr. Milne's case. Surely it is easier to account for the condition by presuming that the thin mucous lining of the lacrymal sac has "gone pop" and permitted air to be forced into the subcutaneous tissues by forceful expulsive efforts from the nasopharynx than that the air has found its way up from the thorax to make itself evident first in the eyelids.

DR. L. J. H. OLDMEADOWS (Dartford) writes: When up country in Tasmania about twenty-three years ago I was called to a shepherd's wife in labour (primipara). She was aged about 20, apparently sound in every respect, and exceptionally well developed; she was much exhausted, had been in labour quite twenty-four hours; the head was presenting and well down through the brim of pelvis; pains were regular and strong. I had waited for about two hours when, after a strong pain, she cried out she could not see, and I found the whole of her neck and face, extending on to her chest, on the right side, was puffed up with a crackling emphysematous swelling; both the eyes, as the emphysema soon spread, were completely closed, and her features became unrecognizable; the emphysema spread down to the abdomen. I had no instruments with me, and I punctured the head of the child with scissors, when it was quickly expelled. The child was exceptionally large and well developed, weighing, I should say, quite 10 lb. I bandaged as well as I could the emphysematous parts of the chest for support, and left the woman pretty comfortable. I saw her next day. The emphysema had greatly decreased, and her general condition was good. I left the district the following day, and did not see the woman again. Having come to England I wrote about ten years afterwards, and found out the woman made a perfect recovery, had had four children since, no recurrence of the emphysema, and was in perfect health. She had no previous history of tubercle of the lung. I cannot account for the occurrence of this emphysema, which appeared to be due to a rupture of a bronchial tube or portion of the lung itself into the mediastinum.

HOLIDAYS ON HOME SERVICE.

BATTALION M.O. writes with reference to one of the points raised by "Bristol" in a letter published March 3rd, p. 313: Leave, while on home service, consists of five days a year, very grudgingly given. At the age of 49, if sick, I should not be allowed to go as convalescent for a single day to my own home. The relief for a sick medical officer is the sanitary officer, who is naturally not enthusiastic at piling your work on to his own. The morning work is a push against time, while the afternoon is very light—inoculations perhaps, at all events, no strain. If you are so much as two minutes late for morning sick, a message may come from the C.O.: "I must request you to be punctual on your parade." You are cut off from your family as completely as though in Salonica. I had seven months in Malta, and the sensation of being right away from them is no greater there than here.

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